



THE BROWNING AUTOMATIC RIFLE

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Series Editor Martin Pegler

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INTRODUCTION

The Browning Automatic Rifle was one of the most important infantry weapons in the US arsenal during the waning days of World War I through World War II and the Korean War. Named for its iconic and highly influential inventor, John Moses Browning, this automatic rifle was and is commonly known as the BAR, pronounced B-A-R. The BAR was a powerful and reliable automatic weapon well loved by the men who used it.

An automatic rifle is a relatively lightweight, shoulder-fired weapon utilizing a standard infantry rifle cartridge, but unlike a rifle-caliber machine gun, the automatic rifle is not optimized for sustained fire. The concept grew out of the necessity to combat the deadly effects of the machine gun on the battlefield, especially during the early days of World War I – the first major machine-gun war – when traditional infantry riflemen were decimated long before they could get close enough to silence an enemy machine gun. Automatic-rifle tactics were developed to allow the riflemen or grenadiers to advance under the protective fire laid down by the automatic rifleman until the teams could get close enough to eliminate a hostile machine gun. The machine guns of the day were quite deadly but they were also heavy and difficult to move quickly across the battlefield. Many were water-cooled, and their water jacket and water can added significant weight to the weapon. The tripod and ammunition boxes added even more weight, and the guns sometimes required a cart to transport them.

The automatic rifle, at least theoretically, combines the blistering automatic fire of a machine gun with the accuracy and portability of an infantry rifle. To offset the murderous effects of the ubiquitous German Maxim machine guns of World War I, the French, under the direction of Col Louis Chauchat, developed the 8mm *fusil mitrailleur* or machine rifle. Thus equipped, the rifle platoon could advance on a German gun emplacement while providing its own automatic fire.

OPPOSITE

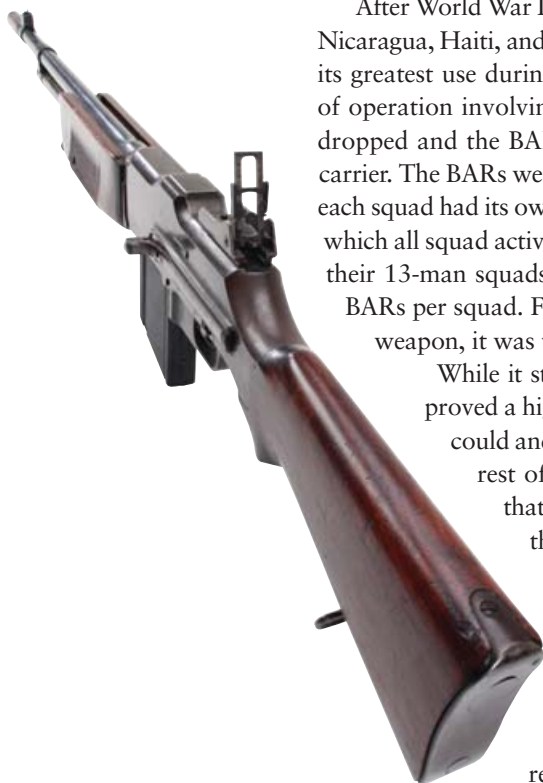
In the right circumstances, the Browning Automatic Rifle's combination of portability and heavy automatic firepower was devastating. This BAR man of the 2nd Infantry Division, photographed in France, 1944, killed 27 Germans single-handed with his. (Armor Plate Press)





The bipod-equipped M1918A2 was an updated Browning Automatic Rifle which saw service in World War II, Korea, and even (in some hands) into Vietnam. It weighed 4lb (1.8kg) more than the original M1918. (National Firearms Museum, NRAmuseum.com)

The heft of the 15.5lb (7kg) M1918 Browning Automatic Rifle is obvious in this photo, showing clearly the substantial receiver and forearm. This is a World War I-era weapon made by Winchester. (National Firearms Museum, NRAmuseum.com)



The BAR was a select-fire, air-cooled, gas-operated automatic rifle fed through a detachable 20-round or 40-round box magazine. Browning's original BAR, adopted by the US military and designated the M1918, operated in two modes of fire: semi-automatic or full-automatic at 550 rounds per minute (rpm). The updated version of the BAR used during World War II, and the Korean War, was designated the M1918A2 and no longer featured the semi-automatic rate of fire. The M1918A2 could only fire at full automatic with two cyclic rates: automatic-slow at 350rpm or automatic-fast at 550rpm.

More than 100,000 BARs were produced during World War I, although very few of that number actually saw combat with American troops in France as the war ended sooner than expected. The BAR, like the French automatic rifles also used by American troops during World War I, was at first employed as a three-man crew weapon, with a gunner, a loader, and an ammunition bearer. The automatic-rifle teams comprised the better part of a squad within a rifle platoon.

After World War I, the BAR accompanied the Marines to troublespots in Nicaragua, Haiti, and the Dominican Republic, and to China. The BAR saw its greatest use during World War II, when it served in all major theaters of operation involving US troops. By World War II, the loader had been dropped and the BAR crew consisted of the gunner and an ammunition carrier. The BARs were also distributed throughout the rifle platoon so that each squad had its own BAR, which served as a "base-of-fire" weapon upon which all squad activity centered. Later in World War II, the Marines broke their 13-man squads into four-man fire teams and tripled the number of BARs per squad. For them, the BAR was no longer the squad automatic weapon, it was the fire-team automatic with three per squad.

While it still saw action as an anti-machine-gun weapon it also proved a highly useful tool in dealing with snipers. One BAR man could and sometimes did inflict as many enemy casualties as the rest of the rifle platoon combined. It was so highly valued that the veteran American divisions fighting at the Battle of the Bulge by one means or another equipped themselves with far more BARs than they were officially authorized to carry. Only the 106th Division carried the allotted number of BARs, which turned out to be far fewer than needed to defend a thinly stretched front. The BAR was retired from regular infantry service after the Korean War, but an adequate replacement would not be found until the mid-1980s.



DEVELOPMENT

America's automatic rifle

With many inventions in history, several independent inventors were often working toward the same goal, scrambling to get their design or patent out before their competitors could beat them to the punch. Usually one name is remembered and the rest are forgotten; however, in the development of the first automatic rifles and machine guns, several names still hold considerable weight. Hiram Maxim, an American who later became a British citizen, is generally credited with inventing the first true machine gun in 1885, thereby rendering the multi-barreled hand-cranked Gatling gun obsolete. Another American, Col Isaac Lewis of the US Army coastal artillery, just three years younger than John Browning, is well remembered for his Lewis light machine gun of 1911 as well as other automatic weapons.

In the years of peace following the American Civil War, the US military, unlike their Russian and Western European counterparts, had been incredibly reluctant to embrace the latest advances in military technology, particularly the modern machine gun. Ironically, in the decades after the war some of the world's best inventors of automatic weapons were Americans who, of course, had to make their fortunes elsewhere. Among these was John Moses Browning.

In his shop in his hometown of Ogden, UT, John Browning, in partnership with his brother Matt and their half-brothers Ed, Sam, and George, began the career in firearms design that would lead to 128 patents involving over 80 unique models. Before he became one of the most influential military small-arms designers in US history, Browning enjoyed a successful career selling a variety of sporting arms, notably rifles and shotguns. The Winchester Repeating Arms Company purchased 44 of Browning's designs prior to 1902, when he and Winchester parted ways over the royalty rights of Browning's new automatic shotgun. Some of

the other arms manufacturers that Browning dealt with offered royalties; Winchester offered none. Browning would soon take his automatic shotgun to one of the other manufacturers he had business with: Fabrique Nationale d'Armes de Guerre in Liège, Belgium.

In 1889 Browning began his first experiments with a gas operating system by modifying a lever-action Winchester Model 73. By placing a special flapper over the muzzle and attaching the flapper to a rod that was fixed to the modified lever, he created a crude .44cal automatic rifle. The flapper mechanism included a cap situated directly over the muzzle. When the first round was fired, the projectile passed through a hole in the center of the cap. Much of the high-pressure propellant gas escaped through this hole, but the expanding gas also had sufficient power to push the cap down. This action moved the rod, which cocked the modified lever, chambering and then firing the next round. The shooter no longer had to manually cock the lever in order to continue firing. This tapping of propellant gases to power a mechanical cycling system was an important step forward in the development of automatic weaponry, and most rifle-caliber automatics now use some form of gas operation.

After more experiments, several patent applications would soon follow, the first in January 1890. By 1891, Browning had developed his first belt-fed gas-operated machine gun, which he took to Colt's Patent Fire Arms Manufacturing Company, the makers of the Gatling gun. The officials at Colt expressed an interest in the new machine gun, which weighed less than half the 90lb (41kg) of the Gatling. Colt arranged an unofficial demonstration of the new weapon for a small group of US Navy officers who were duly impressed.

John Browning, on the left, inspects a BAR fresh off the assembly line as Winchester's rifle expert, Frank Burton, looks on. Browning never lived long enough to see the true impact of his BAR, or any of his machine guns for that matter. Browning suffered a heart failure on the day after Thanksgiving in 1926 while visiting his son Val in Liège, Belgium. He died in Val's office at the Fabrique Nationale facility. (NARA)

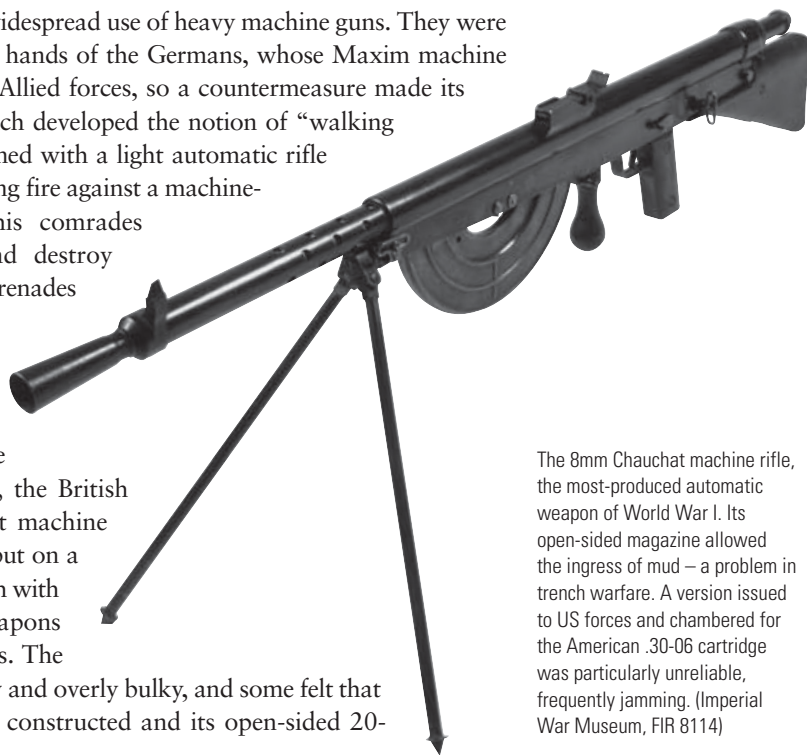


With encouragement from Colt, Browning began developing an improved version, including a model featuring a hole drilled into the barrel close to the muzzle that would force the gas from the passing bullet to work a piston. The revised operating system was a vast improvement on the experimental Winchester 73 “flapper” automatic. The new belt-fed .30cal was officially tested by the Navy in 1893 with positive results. By 1895 Colt began manufacturing what would be known as the Colt Model 1895, or the “potato-digger.” When the US Navy ordered 50 M1895s, which were delivered in 1897, the “potato-digger” became the first fully automatic weapon purchased by the US government. The M1895 saw action during the Spanish–American War and the Boxer Rebellion in China, and it made its way to Europe during World War I. Although it was considered obsolete by World War I, the operating system of the M1895, actuated by a gas piston, was a direct forerunner of the system utilized by the BAR.

Not satisfied with the M1895, Browning began work on a water-cooled .30cal machine gun in 1900, which he would continue to improve upon. Although the US Army was not very interested in any machine guns during this period, as Hiram Maxim also discovered, Browning knew that other governments were buying machine guns. By 1910 he had developed another model, and when World War I broke out in Europe, he began working on his version of a light machine rifle that could be carried and operated by a single soldier.

WORLD WAR I

World War I saw the first widespread use of heavy machine guns. They were particularly effective in the hands of the Germans, whose Maxim machine guns were devastating the Allied forces, so a countermeasure made its way to the front. The French developed the notion of “walking fire” whereby a soldier armed with a light automatic rifle could lay down a suppressing fire against a machine-gun position, allowing his comrades to advance with him and destroy the machine gunners with grenades or other weapons. The French were using the 8mm M1915 Chauchat machine rifle – the most common weapon of its type used in the war. Similarly, the British were using the Lewis light machine gun as an automatic rifle, but on a smaller scale than the French with their Chauchat. Both weapons had their share of problems. The Lewis gun was rather heavy and overly bulky, and some felt that the Chauchat was crudely constructed and its open-sided 20-



The 8mm Chauchat machine rifle, the most-produced automatic weapon of World War I. Its open-sided magazine allowed the ingress of mud – a problem in trench warfare. A version issued to US forces and chambered for the American .30-06 cartridge was particularly unreliable, frequently jamming. (Imperial War Museum, FIR 8114)



On February 27, 1918, the BAR made its first public appearance before a group of military and civilian officials at Congress Heights just outside Washington, DC. The metal cups intended to stabilize the weapon when firing from the hip are clearly visible on the right side of the gunners' belts, as are the pistol ammunition pouches. Note that the assistant gunners are also wearing BAR web bandoliers – one slung at the chest and one at the back. The BAR bandoliers were issued in right and left sections. Each section featured three pouches and could hold six BAR magazines in total. (Library of Congress)

round magazine proved impractical in the muddy conditions at the front. Additionally, the .30-06-caliber Chauchats that were later issued to American troops proved especially problematic, often jamming after only a few shots.

US military planners were looking for a more satisfactory alternative to the Chauchat. In February 1917, two months before the US officially entered the war, John Browning was on hand to demonstrate a prototype model of what would later become the BAR. More tests and demonstrations were made after the United States entered the war, and politics must have inevitably played a role. Col Lewis had hoped that the American military planners would choose the .30cal version of his light machine gun, but although the United States ordered nearly 20,000 Lewis guns they were relegated to service on aircraft and were considered unsuitable for infantry service. Six years earlier, the US government had already selected John Browning's Colt .45cal semi-automatic pistol, the M1911, as the military's issue sidearm. In May 1917, Browning's machine rifle was accepted as America's standard infantry automatic rifle.

The BAR was more reliable than the Chauchat, and didn't suffer the jamming problems associated with the American .30-06 version. The BAR used closed-sided magazines, weighed around 4.5lb (2kg) less than the Chauchat, and employed the gas operating system instead of the long recoil system of action. The original M1918 also featured a semi-automatic capacity, which some gunners found useful in certain situations. Many felt that the automatic cyclic rates of both the Chauchat and the M1918 were too rapid to provide accurate fire, which led Browning to develop a rate reducer mechanism (intended as a retrofit) after the war.

The M1918

John Browning's .30cal water-cooled machine gun was also accepted that year and to differentiate the two new weapons, the machine gun was designated the M1917 while the automatic rifle became the M1918. During World War I the M1918 went by several names including the Browning Machine Rifle, the Browning Aircooled Gun, and the Light Browning. The M1917 was known as the Heavy Browning. The August 1918 Ordnance Department handbook for the M1918 refers to the new weapon as the Browning Automatic Rifle, the name which would eventually stick, along with its more informal moniker, the BAR.

The M1903 Springfield rifle, which replaced the older Krag-Jørgensen rifle as the official US infantry shoulder arm, fired a .30cal cartridge. In 1906, the military introduced a more powerful version of the standard .30cal cartridge that provided a greater muzzle velocity and superior penetrating power for the ball projectile. The Browning Automatic Rifle was chambered for the newer cartridge, which to this day is still known as the .30-06 (pronounced "thirty-aught-six" or "thirty-oh-six"). In addition to the ball round, the .30-06 caliber also including armor-piercing and armor-piercing incendiary rounds. A select-fire rifle like the Chauchat, the M1918 could fire either semi-automatic or full-automatic at a cyclic rate of approximately 550rpm, with a muzzle velocity of 2,682fps (817m/s). Ammunition for the BAR was fed through a spring-loaded 20-round or 40-round box magazine. The weapon weighed 15.5lb (7kg) unloaded and 16.9lb (7.7kg) with a loaded 20-round magazine.

This example of the M1918 was made by Winchester. Note the selector switch marked "S," for safe, "F," for "fire" (semi-automatic), and "A" for automatic. Somewhat confusingly, this marking was retained on the M1918A2, although it substituted 350rpm automatic-slow fire for the semi-automatic capability. (National Firearms Museum, NRAMuseum.com)



BELOW

The young women seen here in April 1918 at the Winchester factory in New Haven, CT are assembling trigger guards. This type of work was all done by women. (NARA)

BELOW RIGHT

This young woman is putting the magazine parts together. To her left is a pile of magazine followers, to her right is a group of magazine bases, and just in front of her is a sizeable row of magazine springs. The BAR saw very limited use in World War I; however, the efforts of this woman and others like her were not made in vain. During World War II, BAR magazine production was canceled when someone at Rock Island Arsenal discovered that they still had over 2,000,000 magazines left over from World War I production runs. (NARA)

Later tests would show that a ball round from the BAR could penetrate 0.375in-thick (9.5mm) steel plate or 50 0.875in (22mm) pine boards. The BAR could easily put a round through a brick wall and eliminate a target on the other side. Light armor offered little protection against the BAR. Armor-piercing rounds, which saw action as early as World War I, included a hardened steel pin inside a copper-nickel jacket. The projectile of the standard 150-grain .30-06 round comprised a lead core encased in a copper-nickel jacket.

World War I production

John Moses Browning and the Winchester Repeating Arms Company may have parted ways in 1902, but under the pressures of war the US government would soon have them working together again. While US Secretary of War, Newton Baker, wholeheartedly endorsed Browning's new automatic rifle in May 1917 it was still months away from actual production. In July 1917 Colt's Company secured the first Ordnance Department contract for a run of 12,000 automatic rifles, but their initial production models would not come off the line until February 1918. American firearms manufacturers were already heavily engaged producing a wide variety of machine guns and other arms for the British and Russian militaries. Unable to meet the demands of the US government, Colt was forced to share its licensing rights for the M1918 with Winchester and the Marlin-Rockwell Corporation. In the fall of 1917, the Ordnance



Department placed Winchester under contract for 25,000 Light Brownings and secured Marlin-Rockwell to build an additional 20,000 more. Under the circumstances, Colt was obligated to lend its sample model, tools, gauges, and drawings to its erstwhile peacetime rivals.

With three of his designs under government contract and in heavy production – the M1911 pistol, the M1917 water-cooled machine gun, and the BAR – Browning stayed extremely busy. In his agreement with the Ordnance Department, he had to supervise and troubleshoot the production of all three weapons and conduct regular visits to six different factories. He decided to make Hartford, CT, where Colt's main offices were located, his base of operations. From there, he would travel to the Winchester and Marlin-Rockwell plants, both located in New Haven, CT as well as Colt's Meriden, CT plant to oversee the production of the BAR. He also made trips to the New England Westinghouse Company plant in Springfield, MA and to the Remington Arms Company factory in Ilion, NY, both of which were charged, as was Colt, with building the M1917.

Browning secured an apartment in Hartford, brought over his wife and two youngest children, and enlisted the help of two of his brothers. He saw his hometown of Ogden only once in a nearly two-year period and even that was on urgent business. In addition to dedicating his time and expertise to the war effort, he also put patriotism ahead of business. With the US government's urgent need to get reliable automatic weapons into the hands of US troops, the legal difficulties surrounding the proper patents for the new weapons, as well as the negotiations with multiple manufacturers,

BELOW LEFT

Another Winchester employee, a riveter, is putting the final touches to a BAR. (NARA)

BELOW

Each BAR at the Winchester facility was test-fired to make sure that the action functioned properly. The BARs were shipped with a magazine attached. (NARA)





A group of Americans from the 80th Division are showing off captured German helmets and body armor in October 1918. The two on the left are holding their .30-06 "American" Chauchats — one with a magazine and one without. The third man from the left holds a Mauser infantry rifle while the fourth man holds a 13mm Mauser antitank rifle. These men may be hamming it up for the camera but there is still a war going on; they have their gas masks slung at their sides. (NARA)

would have resulted in needless delays. Browning agreed to a fixed settlement for the duration of the war, waiving not only the usual royalty payments but temporarily the patents themselves. One estimate puts his loss in royalties at \$12.7 million in 1918 money. According to Browning and Gentry's book *John M. Browning: American Gunmaker*, when his brother Matt complained that they probably could have made a lot more money from the US government, Browning responded, "Yes, and if we were 15 or 20 years younger we'd be over there in the mud!"

Another source of manufacturing delay resulted from the bureaucratic hurdles set up between the Ordnance Department in Washington and the factories producing the weapons. Each factory required an inspection from an assigned Ordnance officer, and every time Browning made a variation in one of his designs the officer had to get a blueprint of the change and send it off to Washington for the necessary approval, which could set production back for weeks. Browning eventually approached the Ordnance Department directly, and was granted authority to give final approval on the production of his own weapons' designs, thereby saving a lot of time.

By late July 1918, the three companies had built 17,000 BARs: 9,700 by Winchester, 5,650 by Marlin-Rockwell, and 1,650 by Colt. Military planners expected the war to extend well into 1919 and many foresaw that America would play a large role in defeating the German forces. In order to meet the needs of the increasing numbers of American infantry divisions, the US government placed orders for a wartime total of

288,174 BARs. Fortunately for the lives of many, the war ended sooner than expected; however, the production of new “Browning Machine Rifles,” although greatly reduced, did not cease altogether with the signing of the Armistice. The US government canceled orders for 186,000 units while still honoring the rest of the orders. By the end of 1918, 69,960 BARs were built and production continued into the early months of 1919. In total, 102,174 military BARs were constructed during this period.

The cost to the US government for an M1918 varied somewhat among the reports but the average was between \$112.00 and \$123.20. Leather and webbing gear added another \$16.22 and spare parts and other accessories, which were issued not on a one-to-one basis but at a rate of one kit per several rifles, also bumped up the cost.

COMMERCIAL DEVELOPMENTS

Following the war, Colt, which still retained the licensing rights to the BAR, lost no time shifting the weapon from a military firearm to a commercial product. Just days after the Armistice, Colt urged the US government to grant Browning’s patent for the BAR. In February 1919, the US Patent Office finally approved the patent, which had been on file since August 1, 1917. Two months later, the first-ever commercial BAR, known as the “Colt Automatic Machine Rifle, Model 1919,” was sold.

The Model 1919 differed only slightly from the military M1918. The commercial BAR lacked a flash hider, and the recoil spring was now situated inside the butt stock rather than in the gas cylinder tube as on military BARs. Within a few years, Colt introduced another commercial model with features distinctly different from the military BAR. The Model 1924 came with a pistol grip and, more importantly, a shorter forearm that no longer partly enclosed the barrel, to allow for faster barrel cooling. The Model 1924 also included Browning’s patented ejection-port cover and a hinged magazine-well cover, both intended to prevent dirt, snow, and any other foreign objects from entering the receiver. Colt also introduced another Browning patent on the Model 1924 – a rate-of-fire reducer. At the time, many considered the full-automatic rate too fast for the gunner to remain on target while shooting from either the hip or the shoulder.

A commercial Colt M1925 Browning Automatic Rifle. This BAR variant was fitted with a heavy, finned barrel in an attempt to improve cooling and its sustained-fire capabilities, and like other commercial variants of this period it was fitted with a pistol grip. This example was sold to Chile in 7mm caliber. (© Board of Trustees of the Royal Armouries, PR.8535)



With the idea that the BAR might eventually function more as a light machine gun than a squad automatic rifle, Colt came up with another design. While the Model 1925, also known as the R 75, came with all of the new and improved features of the previous commercial model, it also included a heavy finned barrel to allow for better cooling and a spiked bipod mounted near the forward end of the gas-cylinder tube. The new model, with an empty magazine, weighed over 20lb (9.1kg).

One of the design features that prevented the military BAR from adequately serving as a light machine gun was the lack of a quick-change barrel that could be easily demounted and replaced with a fresh barrel by the gunner or crew in the field. Colt addressed this problem with their last commercial BAR, the R 75 A, which went into production in late 1942. Resembling the earlier R 75 in most respects, the R 75 A also included a receiver retooled to accommodate the new barrel, as well as a changing handle attached directly to the barrel. The R 75 A weighed 21lb (9.5kg) with an empty magazine.

The Colt commercial model which probably received the most attention also had one of the smallest production runs. In 1931, in a move to counter the growing violence inflicted by organized crime syndicates taking advantage of Prohibition, the company brought out the R 80 Colt

An excellent view of the Colt Monitor, photographed during FBI firearms training in 1936. Note the slotted Cutts compensator which reduced muzzle climb on the shorter-barreled rifle. (NARA)



“Monitor” Automatic Machine Rifle. Colt intended to sell the Monitor almost exclusively to law-enforcement agencies or to banks and other companies that employed armed guards.

Like the R 75 model, the Monitor also came with a pistol grip, an ejection-port cover, and the lowered forearm, but unlike the R 75, it did not include a heavy finned barrel. Whereas the military M1918 had a 24in (610mm) barrel, the Monitor featured a light 18in (457mm) barrel with a Cutts compensator – a bulbous, slotted device at the muzzle that redirected expanding gas upward. It added about 4in (102mm) to the weapon’s length, but the compensator significantly reduced the recoil and perhaps more importantly, greatly cut down on the muzzle climb experienced when firing on full-automatic. The Monitor also had no bipod and no magazine-well cover, which helped to keep its weight down to 16.2lb (7.3kg), just 11oz (0.3kg) heavier than the original BAR. With its shorter barrel and its comparatively light weight, the Monitor was one of the most portable versions of the BAR ever made. It fired the same 150-grain .30-06 round as its military cousin with a muzzle velocity of 2,600fps (792m/s), barely reduced from the M1918’s 2,682fps (817m/s).

In spite of its impressive specifications and its nearly nine-year production run, from 1931 to 1940, only about 125 Monitors were ever

Prince Leopold of Belgium tests the FN Modèle 30, 1930. Note the “trigger”-style magazine release situated below the trigger guard. With its rate-reducing mechanism located inside the trigger guard, the magazine release had to be moved. The markings for the selector lever positions differed from the American BARs. “S” (Sureté) stood for safe, “R” (Répétition) stood for automatic-slow at 350rpm, and “M” (Mitrailleur) stood for automatic-fast at 500rpm. With the lever set to “R” a quick release of the trigger would theoretically deliver a single shot, allowing semi-automatic fire. (Armor Plate Press)





This 1925 trials BAR in .303cal was considered for adoption by the British Army as its new light machine gun. However, following the final trials in 1930 the British decided to adopt the Bren instead. Ten years later, nearly all of the Mk I Brens were lost during the evacuation of France, which prompted the transfer of 25,000 M1918s from the United States. (© Board of Trustees of the Armouries, ex-MoD Pattern Room Collection)

built. Colt's complete Monitor package – which included the R 80, six magazines, a cleaning kit, and spare parts – sold for \$300, which constituted a fairly prohibitive sum during the Great Depression. Colt's first sales went to Charlestown Prison in Boston, MA, which purchased two Monitors in March 1931. The Police Academy in Rochester, NY bought a Monitor and Colt apparently gave a Monitor to the famous Texas Ranger, Frank Hamer. A few more were sold to banks and private security companies; however, the largest purchaser of Monitors by far was the Bureau of Investigation, subsequently the Division of Investigation, and which was then officially renamed the Federal Bureau of Investigation on March 22, 1935. The Bureau bought 90 Monitors and soon made the weapon the premier “fighting rifle” of the FBI.

Even with the Great Depression looming over the world's economy, Colt still managed to sell more than 5,000 commercial BARs on the global market between 1919 and 1942. The commercial models were chambered to accommodate most of the military cartridges of the day, from 6.5mm to 7.92mm Mauser cartridges, and including the British .303cal service cartridge. Partnering with John Browning's old associates in Belgium, Colt sold hundreds of commercial models to Fabrique Nationale (FN), which in turn resold the weapons to customers across Europe and Africa. Colt made direct sales to buyers in Central and South America, Cuba, Turkey, Russia, and the United Kingdom. FN also negotiated a contract with Colt to manufacture their own version of the BAR, which would eventually result in the FN Modèle 30, sold both to the Belgian government and to FN's foreign customers.

In the meantime, a large contract came across FN's desk from the Polish government for 10,000 BARs. Following World War I, Poland, newly independent after nearly a century and a quarter of foreign occupation, needed to build a national military. The Polish military demanded their own specifications for the BAR including the fittings for an antiaircraft sight. Going into production in 1929, FN produced the first 10,000 Polish BARs themselves, designated by the Polish military as the wz.28 (Model of 1928). The Polish government would later negotiate a contract with Colt and FN to manufacture at their own convenience an additional 12,000–13,000 wz.28s at the State Rifle Factory in Warsaw. The Polish wz.28 saw action during the Spanish Civil War, Hitler's 1939 invasion of Poland, and the Warsaw Uprising of 1944, as well as a variety of Resistance operations. As a testament to John Browning's design, captured Polish wz.28s were gladly put to frontline use by both German and Soviet troops.



US MILITARY DEVELOPMENTS

The cavalry models

During the 1920s, the horse-mounted US Army cavalry was still considered a viable military force in spite of its obvious limitations in an increasingly mechanized world. Following World War I, George Patton, for example, who had made significant strides in tank warfare, returned to the cavalry as a major in the 3rd Cavalry Regiment after the Tank Corps was disbanded.

To meet the special demands of the cavalry, the Ordnance Department began modifying the original M1918. Both the cavalry and the infantry demanded a satisfactory automatic assault weapon that could easily move forward with advancing troops. All of the modifications made to the BAR, and indeed any automatic rifle, involved a compromise between the portability of a light, shoulder-fired weapon and the sustained rate of fire of a machine gun. The automatic rifle in whatever configuration could not accomplish both feats at the same time.

The Ordnance Department experimented with a Model 1919, and then a Model 1920, before it finally settled on the M1922 Cavalry Machine Rifle. To improve accurate fire, especially in semi-automatic mode, a spiked bipod was fitted to the barrel just forward of the forearm, and a stock rest was clamped to the wrist of the butt stock. A heavy finned barrel

A BAR in the appreciative hands of German troops. When Poland was overrun and occupied, many of the Polish wz.28s passed into the hands of German and Soviet troops. (Armor Plate Press)

and a lower forearm helped improve barrel cooling, thus prolonging sustained fire. An improved rear sight was also added, but perhaps the most significant change for the cavalry involved the rear sling swivel, which was moved from the bottom of the butt stock to the left side of the butt stock to better suit a mounted trooper. The bipod and new barrel brought the weight up to 20lb (9.1kg).

In addition to the M1922, cavalry units were also issued special pack outfits or hangers that were mounted onto their spare horses. Each hanger could carry either two M1 Machine Rifle ammunition chests or one M1 chest, a spare-parts case, and the M1922 wrapped in a cotton duck machine rifle cover. Each M1 ammunition chest could hold 300 .30-06 rounds in 15 magazines and the loaded chest weighed just under 30lb (13.6kg).

The M1918A1

The next significant improvement to John Browning's automatic rifle came in the 1930s with several experimental models, eventually leading to the advent of a modified infantry model designated the M1918A1. Developed at the Springfield Armory in Massachusetts, the M1918A1 featured a hinged butt plate designed to improve accuracy when firing from the shoulder. Like the cavalry model it also included a cut-down forearm and a bipod with spiked feet, in this case attached to the gas-cylinder tube just in front of the forearm, but it did not have a heavy finned barrel.

While the M1918A1 and the M1922 were made in very limited numbers, their various design features would influence the most widely manufactured and utilized BAR of all, the M1918A2 of World War II fame.

The operation of the BAR (opposite)

The BAR's user cocks the operating handle rearward and releases to chamber the first round. The bolt, firing pin, and feed rib are situated on the slide. Under its forward movement a cartridge is stripped from the magazine and loaded into the feed ramp. The magazine follower is pushed upward under the tension of the magazine spring.

The barrel was rifled with four grooves with a right-hand twist of one turn in 10in. On firing, the expanding propellant gases are tapped off at the barrel port, and the gas piston head bears the initial thrust from the incoming gases. The gas piston and thus the slide move rearward under the pressure, and the recoil spring is compressed with enough energy to later send the piston forward again. The gas escapes through six gas ports and the gas cylinder assembly's pressure release vent. In use, the recoil spring would eventually wear out, causing a malfunction.

Located in the stock, the BAR's buffer assembly absorbed most of the recoil of the rearward-moving group. As the slide pushes against the buffer head the comparatively soft brass cups, also

known as "friction cups," expand as they push against the comparatively hard steel buffer cones or "friction cones" thus creating friction or a slowing effect along the buffer tube's inner wall. While the buffer spring also absorbs some of the recoil, its primary function is to return the cups and cones back to their rest position at the end of the cycle. On the later M1918A2, the stock would also contain a rate-of-fire-reducing mechanism to allow the option of slow-automatic fire at 350rpm, whose operation also had the effect of absorbing recoil.

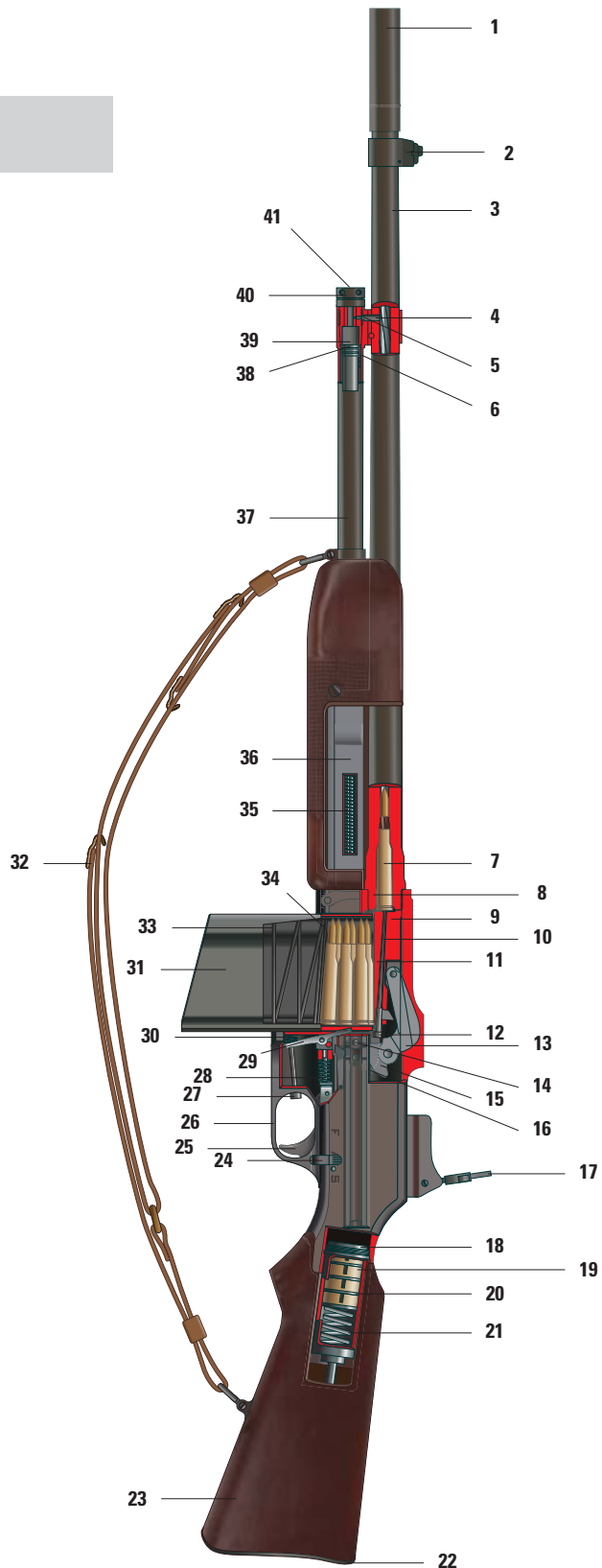
When the magazine release button is pressed the magazine catch spring frees the magazine catch. The magazine should fall away from the weapon, but sometimes it had to be physically extracted by the user.

The selector lever had three designations. On the M1918 the "S" designation stood for "safe," the "A" stood for "automatic" (at 550rpm), and the "F" simply stood for "fire" or semi-automatic. The markings were retained for the M1918A2, but "F" then indicated "automatic-slow," "A" "automatic-fast," and "S" "safe."

THE BAR EXPOSED

M1918 Browning Automatic Rifle

1. Flash hider
2. Foresight
3. Barrel
4. Barrel port
5. Gas cylinder tube port
6. Gas escape ports
7. Cartridge in chamber
8. Feed ramp
9. Bolt
10. Firing pin
11. Feed rib
12. Firing pin head
13. Bolt lock (up in recess)
14. Operating handle
15. Link
16. Hammer
17. Rear leaf sight
18. Buffer head
19. Buffer cup
20. Buffer cone
21. Buffer spring
22. Steel butt plate
23. Butt stock
24. Selector
25. Trigger
26. Trigger guard
27. Magazine release button
28. Counter-recoil spring
29. Magazine catch
30. Magazine catch spring
31. Magazine
32. Modified M1907 rifle sling
33. Magazine spring
34. Magazine follower
35. Recoil spring
36. Slide
37. Gas cylinder tube
38. Gas piston head
39. Gas cylinder well
40. Regulator
41. Pressure release vent



The M1918A2

Not satisfied with the M1918A1, which was standardized in 1937, the developers at Springfield Armory kept working. By 1939 they had come up with the first M1918A2, including a commercial-style pistol grip, although this was soon dropped from the overall design. The features which remained an integral part of the revamped BAR included a hinged butt plate, although slightly shorter than the previous butt plate, and a new skid-style bipod mounted directly onto the revised flash hider to provide better balance. A new rear sight, based on the M1919 Browning's and adjustable for windage, replaced the old M1917 Enfield rifle-based rear sight. The T2 magazine guides were added to the trigger-guard assembly to make it easier for the gunner to reload the weapon. The designers notched the butt stock and added a bushing that would accommodate an aluminum stock rest. The stock rest was added to the M1918A2, as it was to the M1922, to improve shooter accuracy from a prone or fixed position. The military at the time was experimenting with the idea of turning the BAR into a light machine gun. The M1922, with its heavy finned barrel, proved perhaps the most successful BAR incarnation at achieving light machine gun status. In December 1944, Springfield Armory's T4 carrying handle was approved as a piece of auxiliary equipment for the upgraded BAR.

Perhaps the most significant change involved the adoption of a rate-of-fire reducer, which slowed the automatic rate of fire from about 550rpm to about 350rpm. The new M1918A2 could fire at full-automatic fast (550rpm) or full-automatic slow (350rpm) but unlike the original World War I BAR it could no longer fire semi-automatic. By the time World War II broke out, the US military had already adopted the excellent gas-operated semi-automatic .30-06 M1 Garand as the standard infantry rifle, and the planners of the day, with some justification, felt that the infantry no longer needed a semi-automatic BAR. GIs on the ground did not necessarily agree. While an especially skilled BAR man could crack off a single round using the slow rate of fire, many others could not. During the war, a US Marine

BAR ammunition

The eight different centerfire cartridges used by the M1918A2 BAR were described in the US Army technical manual, TM 9-1005-208-12, and the US Army field manual, FM 23-15:

Type	Identification	Use
Ball, M2	no marking (copper/nickel jacket)	for anti-personnel use and against light material targets
Tracer, M1	red bullet tip	for designating targets and for incendiary purposes
Tracer, M25	orange bullet tip	for designating targets and for incendiary purposes and signaling
Armor Piercing, M2	black bullet tip	for use against lightly armored vehicles, protective shelters, and personnel
Armor Piercing Incendiary, M14	aluminum painted tip	for use against flammable targets and in place of M2 round
Blank, M1919	no bullet, paper disk at mouth	for simulated fire, signaling, and firing salutes
Dummy	three holes in cartridge body, no primer	for training purposes



Corps warrant officer actually modified the trigger mechanism in order to regain semi-automatic fire as well as automatic-slow and automatic-fast. The Ordnance Department conducted tests of its own on the modification and in 1946 came up with an experimental T30 conversion kit.

World War II saw two basic types of M1918A2 BARs: newly manufactured models and old M1918s that were simply modified to the new specifications. The earliest BARs issued to US infantry divisions were, of course, “modernized” models left over from World War I. During World War II, the US government designated the M1918, the M1922 cavalry model, and the short-lived M1918A1 as obsolete; this made the M1918A2 the standard BAR of the military, although a variety of different BARs actually showed up in the hands of US troops. In 1939, the United States had a stockpile of more than 87,000 BARs. This number included the 4,160 BARs that had already been converted into the M1918A1 type. Interestingly, all of the 500 M1922 cavalry BARs were modified M1918s

Three men from a Ranger Company in Korea, 1951, are seen with their M1918A2s. While many GIs fighting in World War II discarded some or all of their ancillary parts such as the hinged butt plate, bipod, flash hider, and carrying handle, the photographic record indicates that this was less the case in Korea, where BAR men often retained most if not all of their BAR parts. (Armor Plate Press)

US military BAR variations

Model	Weight (empty)	Sights	Rates of fire	Accessories
M1918	15.5lb (7kg)	rear sight modified from M1917 Enfield rifle, graduated to 1,600yd	semi-automatic; automatic at 550rpm	modified M1907 rifle sling; M1918 flash hider
M1922 ("modernized" from existing M1918s)	20.0lb (9.1kg)	new M1922 rear sight	semi-automatic; automatic at 550rpm	modified M1907 rifle sling; M1918 flash hider; M1922 bipod; front blade sight cover; stock rest; cotton duck cover
M1918A1 ("modernized" from existing M1918s)	17.4lb (7.9kg)	rear sight modified from M1917 Enfield rifle, graduated to 1,600yd	semi-automatic; automatic at 550rpm	modified M1907 rifle sling; M1918 flash hider; M1 bipod; front blade sight cover; long hinged butt plate
M1918A2 ("modernized" from existing M1918s)	20.0lb (9.1kg)	rear sight modified from M1919A2 Browning machine gun, graduated to 1,500yd and adjustable for windage	automatic-slow at 350rpm; automatic-fast at 550rpm	modified M1907 rifle sling; M1918A2 flash hider; early-version M1918A2 bipod; T2 magazine guides; front blade sight cover; stock-rest assembly; short hinged butt plate
M1918A2 (new production, from 1943)	19.4lb (8.8kg)	rear sight modified from M1919A2 Browning machine gun, graduated to 1,500yd and adjustable for windage	automatic-slow at 350rpm; automatic-fast at 550rpm	modified M1907 or M1918A2 sling; M1918A2 flash hider; M1 or later-version blade sight cover; short hinged butt plate; T4 carrying handle; T30 conversion kit (from 1946); winter trigger (Korea)



ABOVE AND RIGHT The M1918A2, equipped with a carrying handle, bipod, and hinged butt plate. The new rear sight was a modified Browning M1919A2 machine-gun leaf sight, with a windage adjuster knob just visible at the firer's right, and an elevation adjuster at the top. The butt plate was to enhance stability when firing from the prone position. (National Firearms Museum, NRAMuseum.com)

US military-issue accessories for the BAR

The accessories issued with the various models of BAR were sometimes discarded by soldiers and Marines during World War II, but those serving in Korea tended to retain them. Together, the hinged butt plate, magazine guides, bipod, and later the carry handle could account for nearly 5lb (2.3kg) of the weapon's weight.

The M1907 **sling**, designed for the M1903 Springfield rifle, was modified for the BAR with the addition of an extra strap and hook. The later M1918A2 sling, made of canvas, was issued from 1943 onward.

The M1918 **flash hider**, designed to prevent the firer being dazzled – or blinded – by his own weapon while firing in low light, was superseded by the M1918A2 flash hider, which incorporated a bipod bearing, for both “modernized” and new-production M1918A2s.

All post-M1918 models were issued with a **bipod**, intended to help steady the weapon when fired from a prone or fixed position. The M1922 cavalry model was issued with the M1922 bipod with spiked-type feet, which mounted to the barrel just in front of the forearm; the M1918A1 used the M1 bipod, also with spiked-type feet, which attached to the gas-cylinder tube just in front of the forearm. The M1918A2 bipod with skid-type feet was issued with the M1918A2 and attached to the flash hider; early examples featured adjustments near the bottom of the legs, while on later examples these adjustments were moved near the top of the legs, making the bipod easier to work one-handed.

The T2 **magazine guides**, retrofitted to the trigger guard assembly of the “modernized” M1918A2, were added to make it easier for the gunner to reload. The T2 guides were often retained while other accessories were discarded. The new-production M1918A2 featured integral magazine guides.

The M1922, M1918A1 and M1918A2 were issued with a **front blade sight cover**.

Hinged **butt plates** designed to improve accuracy when firing from the shoulder were provided for the M1918A1 and M1918A2. The M1918A1 featured a retrofitted longer butt plate, while the “modernized” M1918A2 was retrofitted with a slightly shorter and more practical butt plate; the new-production M1918A2 had the shorter butt plate fitted as standard.

The M1922 cavalry BAR was issued with a cotton duck **cover**, to be used when the M1922 was being carried in the horse “hangers” specially designed for the weapon.

To improve accuracy while firing from the prone position, aluminum **stock rests** were issued with the M1922 and some M1918A2s. Very few were available during the first months of the war owing to shortages of aluminum, and the stock rest was soon deemed unnecessary and was no longer issued after May 1942. The “modernized” M1918A2's butt stock was notched to accommodate a retrofitted stock-rest bushing; while early new-production M1918A2s' butt stocks were notched for this purpose, this feature was omitted from later M1918A2s.

Springfield Armory's T4 **carrying handle** was adopted in December 1944. The BAR was initially designed to fire from the shoulder or the hip but with the help of the T4 carrying handle the gunner could also steady the weapon in a crouch and fire “from the knee.”

The T30 **conversion kit**, developed in 1946, allowed the later BARs to regain the semi-automatic fire capability present in the original M1918.

The **winter trigger**, available only in small numbers and in at least two designs, was designed to allow use of the BAR in the extreme temperatures encountered in Korea.

rather than built as M1922s, and during World War II, many of the M1922s would receive an additional upgrade to M1918A2 specification.

In June 1940, following the near-disaster at Dunkirk, the United States shipped 25,000 BARs to the United Kingdom, which were issued to the Home Guard. While this put a significant dent in the stockpile of automatic rifles, the existing 87,000 BARs would never have met the wartime demands of the American infantry divisions anyway. While the Springfield Armory stayed busy modernizing M1918s, plans for the production of brand-new BARs were underway as early as December 1941.

While the BARs of World War I were built by some of the most recognized small-arms manufacturers in the country, the same could not be said for the BARs of World War II. The US government negotiated a rather complex business arrangement with the New England Small Arms Corporation (NESA), an ad hoc consortium made up of six different companies, which in turn hired 39 different subcontractors to produce a wide variety of new BAR parts. During peacetime the six original companies had produced staples, Ray-O-Vac flashlights, silverware, sporting goods, addressing machines, and blank books among other goods. They would now be making the weapons of war. The US government dusted off the old Marlin-Rockwell and Winchester tools, gauges, and fixtures that had been

Training on the M1918A2 at Officer Candidate School class at Fort Benning, GA, 1942. This BAR is a modernized M1918 fitted with an early-style bipod; its telescoping lower legs are inside the upper legs. On later bipods the adjusters were moved up, and the lower legs now telescoped outside the upper legs; a system that was easier to operate one-handed. (Armor Plate Press)



kept in storage at Rock Island Arsenal and Springfield Armory since World War I, and handed them over to NESAs. To a large extent the old tools proved more of a hindrance than a help, since more than half of them couldn't even be used on the modernized machinery of the 1940s. New tools had to be made.

In August 1942, while the NESAs facilities were gearing up for production, the US government negotiated with the International Business Machine (IBM) Corporation to produce up to 100,000 BARs. The IBM plant in Poughkeepsie, NY was finishing a contract to produce 20mm cannon and could soon switch over to BAR production. IBM agreed to build 68,400 BARs but the US government later dropped all but 20,000 orders so that IBM could shift production resources to the even more badly needed M1 Carbine.

As a direct result of wartime shortages, two other companies made important contributions to the BAR of this era. With a dearth of walnut wood for the thousands of butt stocks required, Firestone Rubber and Latex Products Company came up with a special shredded-fabric-infused plastic that could take the place of the walnut stock. In March 1942, Ordnance approved the use of Firestone's plastic stock. Meanwhile, massive shortages in high-grade steel led developers at Saginaw Malleable Iron, a division of General Motors Corporation, to come up with a substitute, named ArmaSteel. Utilizing scrap steel and pig iron, ArmaSteel was not in fact a steel, but a grade of pearlitic malleable cast iron. From a manufacturing standpoint it made an excellent material for the receiver body, since it significantly reduced machining time and cut down on waste. Both IBM and NESAs gladly embraced ArmaSteel, which greatly improved production efficiency.

Although a partially recycled product, it held up well – both for its intended service, and occasionally beyond it. In Korea one BAR man fighting from a shell crater used the massive ArmaSteel receiver of his BAR as a shield, when Chinese soldiers tossed several stick grenades into his crater. He managed to throw about half a dozen of them out before they went off, but when he couldn't reach the last one in time he clutched his BAR to his chest and fell on the grenade. The receiver absorbed the blast, and although the BAR was destroyed it saved the man's life.

In January 1943, IBM and NESAs produced their first BARs for inspection and approval. A few bugs had to be ironed out. The walls of IBM's plastic butt stocks, for example, were too thin and broke during shipping. The various early problems were resolved and full production began in spring 1943. In all, NESAs produced 168,363 BARs and IBM 20,017 before production ceased. However, during the Korean War, additional new M1918A2s were required to equip both US and allied United Nations troops, and the US government negotiated a contract with the Royal Typewriter Company of Hartford, CT for the production of 61,000 more BARs. Royal Typewriter manufactured the last BARs to see US military service, using the same efficient manufacturing techniques as their World War II predecessors with receivers and trigger guards cast from ArmaSteel, and stocks made from reinforced plastic.



USE

Four decades of the BAR-man

The Russo-Japanese War of 1904–05 showed that the modern machine gun could serve as an excellent infantry weapon. During World War I, considered the first major machine-gun war, the German forces especially made deadly use of their heavy machine guns on a massive scale. On an infantry level, automatic rifles, light machine guns, modern hand grenades, and rifle grenades were all employed to counter the heavy machine guns.¹

While Europe and Russia had proved receptive to the new light and heavy machine guns in the opening years of the 20th century, the United States military remained woefully behind. As noted earlier, the US Navy purchased several of John Browning's Colt M1895 machine guns, but at the time the Army wasn't interested. Following the American Civil War, the Army adopted the hand-cranked ten-barrel Gatling gun, but remained very slow to accept the modern machine gun. When World War I broke out Germany had 12,500 updated Maxim machine guns, and 50,000 more would come off its assembly lines during World War I. Nearly three years later, on April 6, 1917, when the United States officially declared war on Germany, America's arsenal of automatic weapons consisted of 1,100 outdated machine guns and no automatic rifles. Until modern light and heavy machine guns could be tested, approved, and put into mass production, the United States would have to rely on their British and French allies to fill the void. While America may have been slow to respond to the latest advances in weapons technology, by the time World War I ended, the United States had a massive reserve of arguably some of the finest machine

¹ Throughout this book, the distinction between "light" and "heavy" machine guns is not in terms of caliber, as in modern parlance, but in terms of sustained-fire capability and weight – an increase in the former generally requiring an increase in the latter.

guns and automatic rifles in the world. This reserve would prove invaluable during the early days of World War II.

The British supplied the American Expeditionary Forces (AEF) in France with 160 howitzers, 26 tanks, and more than 1,400 trench mortars; however, the vast majority of tanks, airplanes, field guns, railroad guns, automatic weapons, artillery shells, and horses were provided by the French government. In addition to 227 Renault tanks, and nearly 5,000 airplanes, the French also equipped their newly arriving American allies with 5,255 Hotchkiss machine guns, 15,988 “French” 8mm Chauchat machine rifles, and 19,241 “American” Chauchat machine rifles chambered for the US .30-06 service cartridge. American troops were also furnished with 10,411 American-made Vickers machine guns, and within days of the Armistice more than 30,000 Browning heavy machine guns and over 43,000 BARs were either in France or en route to France. According to Col Leonard P. Ayres’ *The War with Germany: A Statistical Summary*, published just after the war, 17,664 BARs were actually used by the AEF, although mostly in training. Of that number, 4,608 saw action at the front with American combat troops.



After the United States entered World War I, John Browning's son, Val A. Browning, temporarily dropped his engineering studies at Cornell University and took a second lieutenant's commission in the Army. In a wise move by the Army, Val was placed in the Ordnance Department so that he could instruct the instructors at the new machine-gun schools established in France. At these schools Val instructed Ordnance officers on the proper use and maintenance of both the BAR and the new M1917 Browning .30cal machine gun. (NARA)

THE ROLE OF THE AUTOMATIC RIFLEMAN

While the use of an automatic rifleman may have seemed new and experimental to American troops arriving in Europe, the position had already formed an important and lasting component of the French infantry, much as the light machine gunner now was of the British infantry. Once in France, the raw American troops, who had been trained on American weapons at home, had to undergo further training to gain proficiency with the new weapons and tactics. For MajGen John J. Pershing (later promoted to General of the Army), commander-in-chief of the AEF, the employment of automatic riflemen suited his plans perfectly. Pershing absolutely did not want his men getting bogged down in the trenches. He wanted to engage in open warfare whenever possible.

As is well known, automatic rifles served at the squad level during World War II and later; however, during World War I the automatic rifles, whether Chauchat or BAR or Lewis, did not function as squad weapons but rather comprised a specialized squad unto themselves. In 1917 the AEF infantry battalion consisted of battalion headquarters, three infantry (rifle) companies, and one machine-gun company. The infantry company, with a strength of 200 enlisted men plus four officers, was further divided into four platoons in addition to the headquarters group as well as supply and mess group.

In World War I parlance, two groups (known as squads by 1918) made up a half-platoon for a total of four groups per platoon. A sergeant led each half-platoon and a corporal led each group. The 1st half-platoon included the 1st and 2nd groups, while the 2nd half-platoon included the 3rd and 4th groups. The 1st group consisted entirely of grenadiers armed with hand grenades. Two automatic-rifle teams made up the 2nd group, which included two gunners, four ammunition carriers, and the corporal. The riflemen specialists made up the two groups in the 2nd half-platoon. Eight riflemen, two rifle grenadiers, one ammunition carrier, and the corporal filled the ranks of the 3rd group. The 4th group had the same specialists as the 3rd group except it had one extra rifleman. The sergeant of the 1st half-platoon could serve as either a grenadier or an automatic rifleman, the latter course of action giving the platoon a total of three automatic rifles, although one automatic rifle was often kept in reserve.

By 1918, these strength levels for both the infantry battalion and the company were considered inadequate. The battalions were strengthened to four infantry companies and one machine-gun company, and the infantry company itself was increased to 250 men and six officers. An additional four automatic-rifle teams and at least six snipers were added to each company. In an assault, either the company commander or the second-in-command was expected to remain behind with three NCOs and 12 riflemen in order to form a core rallying unit to stave off a complete rout in case the company suffered heavy casualties.

Given the specialized function of each group or squad, the principal fighting unit was the platoon. As per MajGen Pershing's tactical instructions, the four squads of the platoons would assault in distinctive waves. Pershing wanted his infantrymen, when engaged in open warfare, to spread out and advance in irregular formations. They were advised to use whatever



cover they could find as long as they didn't unduly slow down the advance. If artillery was available, a moving barrage would cover the first advance. With or without artillery support, the scouts – spread out between ten and 50 paces from one another – would comprise the first wave. The scouts could advance as much as 500m (547yd) ahead of the platoon, moving at irregular intervals and taking cover whenever possible. Their main job was to locate the enemy machine gunners and immediately form a firing line. Next, one or more automatic-rifle teams would move up in support of the scouts. For the third wave, riflemen, rifle grenadiers, and any remaining automatic-rifle teams would begin to advance around both flanks of the main firing line in order to take out the enemy machine-gun crew. From a distance, rifle grenadiers would pound away at the enemy emplacements. Pershing calculated that a platoon could eliminate one or two enemy machine guns. For a large machine-gun nest, the assaulting platoon would require the assistance of supporting platoons on its flanks in order to envelop the enemy position.

The first BARs began arriving in France in July 1918 with elements of the 79th Division, but would not see combat until September. Under direct orders from Pershing, the new BARs were taken from the American troops and sent to Ordnance depots where they could be amassed for general issue later. The American divisions were then issued French or British automatics. According to Ayers' statistical report, Pershing considered both the M1917 and M1918 Brownings superior to the automatic weapons then in use, and worried that if they were captured in battle the Germans might begin to manufacture their own versions. He wanted to wait until he had enough BARs and Browning machine guns in France to equip several divisions, plus a supply on hand to serve as replacements.

While a genuine fear of a "German BAR" may have influenced Pershing's decision to delay the use of the Browning automatic, he had many

ABOVE LEFT

At the Ordnance Department headquarters in France during World War I, a man demonstrates the shoulder firing position. He is wearing the gunner's BAR ammunition belt with the metal cup mounted onto the belt and two pouches for M1911 .45cal pistol magazines. The rest of the pouches hold BAR magazines. (NARA)

ABOVE

Here the same Ordnance man demonstrates how the BAR's butt fits into the metal cup to steady the weapon while the gunner fires from the hip. While the technique of firing from the hip may not seem like the most accurate way of using the weapon it did in fact produce tremendous results time and time again. The metal cup was soon dropped from use, though, since it wasn't really necessary and it also hampered the gunner's side-to-side mobility. (NARA)



This photo taken at Harmonville, France in August 1918 offers a fantastic view of a complete Marine platoon from the 6th Marines training to take out a German machine-gun position. All four "waves" or squads are clearly visible. Three automatic rifle teams, working in pairs, and four snipers in prone position comprise the first squad. The second squad, made up of grenadiers armed with hand grenades, is crouching directly behind them. The third squad, which is moving off to the left of the picture, and the fourth squad, which is moving off to the right, are made up of riflemen and rifle grenadiers. The third and fourth squads are attempting to flank the phantom machine gun while the automatic riflemen and snipers provide direct fire. The automatic riflemen are armed with Chauchats. (NARA)

other concerns that could have also played a role. Pershing faced a logistical and administrative nightmare. While he could rely on the infantrymen to disembark from the troopships with their Springfield rifles, he couldn't depend on much of anything else to arrive safely with his divisions. In a memo dated August 10, 1918, Pershing remarked that Browning machine guns were showing up with no tripods, water boxes, or carts. He had no choice but to rearm his troops with Vickers machine guns. In order to avoid duplication, or even worse, no automatic weapons at all, he found it best to strip incoming divisions of all of their organizational equipment and issue them replacement equipment from the depots already established in France.

Until late in the war, to a large extent the AEF functioned less as an American army than as an extension of the British and French armies. American troops were frequently stripped of their equipment every time they were shuffled off to a new zone. The 80th Division, for instance, came to France armed with American Vickers machine guns. When sent to a British zone, they were issued British Vickers and British Lewis guns. After leaving the British zone, they were given American Vickers and .30cal Chauchats. Later, those automatics were taken away and the 80th received the light and heavy Brownings. Several other divisions were even stripped of their Springfields, issued British Enfield rifles, and after a transfer to a French zone re-issued their American rifles. In September 1918, the same month that the BAR first saw action, Pershing officially assumed command of the American zone and actually had some French troops at his disposal.

Another concern involved service and repair. Ordnance shops equipped to deal with damaged Chauchats were already well established by the

time American troops arrived in France and it would take a little more time to provide the same type of maintenance facilities for the BARs. The Mobile Ordnance Repair Shops were absolutely crucial in keeping the infantry divisions supplied with functional automatics. According to Col A.E. Phillips' November 11, 1918 report for the Ordnance Department, once committed to battle, an infantry unit would lose over half of its automatic rifles within days. The automatic rifleman was and would continue to be a primary target for enemy troops. Ordnance officers found it impractical to ship damaged automatic rifles by rail to a rearward area for repair and wait for them to return. Combat units were not issued spare parts for their automatic rifles and to keep them supplied quickly, the Mobile Ordnance Repair Shops were kept close to the front. Each shop also kept on hand 20 serviceable automatic rifles for immediate exchange or replacement.

Automatic rifles were not restricted to anti-machine-gun activity, but were used in other capacities as well, including commando raids. Private Donald D. Kyler, who left a very detailed memoir, noted that he and a small group of soldiers from the 16th Infantry, 2nd Division operating in the Vosges region near Nancy were sent out of their trenches on a night ambush to eliminate a German patrol. The two men on the flanks were armed with automatic rifles while the men in the center carried pistols and daggers. After darkening their faces with a mixture of burnt cork and oil they crawled through a gap in their own wire toward the German trenches and waited for the patrol. Although the patrol arrived as expected, something must have spooked them because after a brief pause the Germans turned and immediately ran back to their trenches. Kyler's lieutenant opened fire, giving the signal for the rest of the US raiding party to attack. Several Germans were killed or wounded but most of the patrol escaped. Kyler's group made their own hasty retreat, knowing that the German machine guns would open up on them as soon as their own men were out of the line of fire. Kyler, the last man back, jumped into a shell crater as the machine guns opened fire on him.



A group of US Marines are receiving instruction on the maintenance of their Chauchat machine rifles from their French allies in 1917. The barrel of the 8mm Chauchat has been removed. (NARA)

2Lt Val Browning is demonstrating the use of the BAR in France. 1Lt Julian Prade is serving as his first assistant gunner or loader. (NARA)







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BETWEEN THE WORLD WARS

The BAR saw some notable service with the US Marines during the interwar period. The Marines were sent to Nicaragua, the Dominican Republic, and China, where they carried out patrols on the Yangtze River. In the spring of 1916, nearly a year before the United States entered World War I, a contingent of 632 seasoned career Marines was sent to the Dominican Republic to deal with the region's political unrest. Within six months, more than 2,200 Marines would take up posts in the villages and towns of the Dominican Republic. Once the United States committed large ground forces to the Allied cause, many of these Marines were disappointed to find themselves on an island far from the action while the main fighting raged across Europe. Although the US presence reached a peak strength of 3,007 Marines in February 1919, the situation had grown much worse. From August to December 1918, the Secretary of the Navy ordered the Corps to accept draftees. Many of the new Marines sent to the Dominican Republic had been drafted after the Armistice and didn't want to be in the military at all.

When Capt (later LtGen) Edward A. Craig arrived the Marines assigned to him were near the point of mutiny. Conditions were so bad that Capt Craig had to sleep with a BAR next to his bed for protection. With the help of two NCOs, Craig managed to drill his poorly trained draftees into a well-disciplined Marine company.

The AEF's machine rifle (previous pages)

Each member of the three-man BAR teams of World War I played a specific role and carried a specific ammunition belt. The gunner, of course, carried the BAR, which was often referred to in this period as the Browning Machine Rifle (BMR). The first assistant gunner served as the loader while the second assistant gunner carried extra ammunition. The gunner's belt held a metal cup for seating the BAR's butt when fired from the hip. It also held two pouches for his .45cal automatic pistol magazines and four pouches for holding two BAR magazines each. The first assistant gunner (central figure) wore a belt that featured two pouches for .45cal automatic pistol magazines and five BAR magazine pouches. The second assistant gunner (right-hand figure) wore a belt that held four pouches – two on each side – for M1903 Springfield rifle clips plus four BAR magazine pouches. The second assistant carried a M1903 Springfield while the first assistant carried a M1911 pistol, although photographs from the era indicate that the first assistant sometimes also wielded an infantry rifle.

The BAR was frequently used in conjunction with other weapons such as hand grenades or rifles. By the summer of 1918 American troops were frequently issued American fragmentation hand grenades or "poor man's artillery." American troops were previously issued French hand grenades, which held a pin covered with a metal cap and sealing wax. Pressure on the pin would ignite the fuse, which detonated the weapon in about five seconds. The American grenade featured a cotter pin fixed with a pull ring, and a spring-loaded safety lever. The American grenade proved much safer than the hazardous French variety. Even with the cotter pin removed it couldn't ignite until the user released the safety lever. For special combat missions some troops stuffed their pockets with grenades while others were issued grenade sacks like the ones seen here, carried by the first and second assistant gunners.

To help combat the violent bandits, the Marines armed and organized local Home Guard units, the *Guardia* (later the *Policia Nacional Dominicana*), to go out on patrols. A Marine officer led the local guards and two or three enlisted Marines armed with BARs added to their firepower. In time, the sparsely supplied *Guardia* were given three automatic rifles of their own. By October 1924 all the Marines were pulled out.

Gangsters on the home front

While the BAR helped quell the roving criminal forces in the Dominican Republic, in America some of the criminals themselves were armed with the powerful Browning automatic. Perhaps the most notorious criminal element to use the BAR was the Barrow Gang. While Clyde Barrow and Bonnie Parker formed the nucleus of the gang, other members, at various times, included Clyde's brother Buck and Buck's wife, Blanche, Ray Hamilton, Henry Methvin, Joe Palmer, and the teenager W.D. Jones, among others.

Growing up in the rough streets of west Dallas, TX, Clyde Barrow's criminal career began with chicken theft, which soon led to auto theft and beyond. In a crime spree spanning more than two years, the Barrow Gang cut a path of destruction across the American Midwest and into the South, leaving around a dozen dead in their wake, mostly law-enforcement officers. Clyde's car of choice was the fast and thick-skinned V-8 Ford, and his primary weapon was the BAR.

During his criminal career, Clyde broke into several National Guard armories from Texas to Illinois and stole all the military BARs he wanted, plus numerous .45cal automatic pistols, and thousands of rounds of ammunition. On the run for two years, and narrowly escaping capture in violent clashes with the police, the gang often had to leave weapons and even cars behind. Apparently, it wasn't difficult to roll into a town and pilfer the local armory. Clyde not only kept his gang armed with BARs but while camping out along the remote country roads, he made sure they honed their shooting skills with plenty of target practice.

In a 1968 interview for *Playboy* magazine, W.D. Jones claimed that Clyde had welded together three BAR magazines so that he could shoot 56 rounds before reloading. Clyde would sometimes slam on the brakes, whip the BAR around and blast a tree or a sign just for practice. Jones also claimed that Bonnie never fired a shot during the five gunfights the gang was involved in. She was the loader.

Other accounts state that during the Joplin, MO shootout at a two-storey garage apartment Bonnie did more than just load the weapons. When five woefully outgunned lawmen – two Missouri state troopers and three Joplin officers – approached the apartment to make an arrest they were greeted with a hail of automatic-rifle fire. Bonnie was seen standing at a window in her negligee shooting down at them. Trooper G.B. Kahler claimed that she splintered the tree in front of him with her BAR. While the exact details of what happened that April night in 1933 may not be known for certain, one thing is not disputed – time and again, the Barrow Gang used their BARs with deadly effect.

Three months later, after a frustrating search across Oklahoma and Iowa, the authorities finally cornered the gang at the Red Crown Cabin Camp near Platte City, MO. After calling in an armored car, steel shields for the men, and a couple of machine guns, the Missouri police were sure they had the upper hand on the Barrow Gang this time. They were wrong.

Deputy George Highfill drove the armored car up to the garage doors between the two cabins to block the gang's escape by car. When the spotlights were turned on and the fugitives were ordered to come out, the police noticed a slight delay before the BAR rounds began ripping into one of their police cars. The police responded with a machine gun but before long, rounds from a BAR, which could easily penetrate light armor, tore through the armored car striking Highfill in both knees. One of the police machine guns jammed. Highfill and Deputy Thorpe, sitting next to him, decided to back the ineffective armored car out of the way. The cabin where Clyde, Bonnie, and W.D. were staying had an inside door that opened directly into the garage. W.D. laid down covering fire with his BAR while his companions got in the car. Exiting the second cabin by the front door, Buck and Blanche dashed for the garage using a mattress as an impromptu but also ineffective shield. Buck sustained a serious head wound. With the police armored car out of the way and everyone piled into the getaway Ford, the gang once again blasted their way to freedom with W.D. standing on the running board hammering the police with BAR rounds.

In the meantime, members of the Dallas County Sheriff's Department were also on the prowl for the Barrow Gang. Ted Hinton, who reluctantly assumed the role of a deputy sheriff, actually knew Clyde and the Barrow family and he had been friends with Bonnie while she was still working as

The BAR on both sides of the law (opposite)

Clyde Barrow became something of a self-taught expert BAR gunner. Like the gangster seen here Barrow cut down the barrel on at least two of his BARs to make the weapon easier to shuffle in and out of a car and easier to shoot from the window of a car, which he occasionally did. It didn't take a large man to handle the weapon. At 5ft 5½in and 127lb (166cm/58kg), Clyde Barrow had no trouble wielding the BAR. W.D. Jones was about the same size as Clyde and he handily operated a BAR in battles with the police. Bonnie Parker may have weighed 100lb (45kg), if that much, and regardless of whether Bonnie actually fired the BAR in a gunfight or not – this is disputed – she certainly hefted them plenty of times. Bonnie served as the chief loader for her criminal BAR crew. Produced in very low numbers, the Colt Monitor, depicted with a lawman here, was mostly used by federal agents. While the FBI, the enforcement arm of the Justice Department, bought most of the Monitors that were sold there is evidence that 11 Monitors were sent to the Treasury Department. Treasury agents, once known as T-men, could trace their roots back to the 18th century. Eliot Ness, perhaps the most famous T-man of all, helped send Al Capone to prison on charges of tax evasion. The Treasury enforcement agency was later called the Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF). The vast majority of ATF agents who fell in the line of duty were killed while trying to enforce the federal alcohol Prohibition laws of 1919–33. Their new Monitors couldn't help them combat alcohol trafficking – the commercial Brownings didn't arrive until 1934.



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a waitress in 1930. Hinton's partner, Bob Alcorn, arrested W.D. Jones in Houston in mid-November 1933. Jones had lost the tips of two fingers in gun battles and he still carried a police bullet and some buckshot in his chest, but in many ways he remained the luckiest member of the gang. As a juvenile he received only a relatively short prison sentence.

Later, Hinton and Alcorn discovered that Bonnie and Clyde would be in the area, so they organized an ambush for the fugitive pair at a dairy farm near Sowers, just northwest of Dallas. Hinton and Sheriff Smoot Schmid were armed with Thompson submachine guns, while Alcorn carried a BAR. When Schmid jumped up and ordered Clyde to stop his car, the inevitable gun battle broke out. Bonnie and Clyde escaped. The officers had been firing from about 75ft (23m) away and after they had recovered the abandoned car they noticed that Alcorn's BAR rounds had gone in one side of the car and out the other while the low-velocity Thompson rounds barely dented the bodywork. Hinton swore that he would never confront Clyde with a Thompson again. He wanted his own BAR and after making an appeal to a congressman he got one. He also got a V-8 Ford.

On January 16, 1934, Clyde used a BAR during a gutsy prison break. His friend Ray Hamilton was serving a 263-year stretch at the Eastham Prison Farm near Crockett, TX. Ray's brother, Floyd, had visited the prison farm a few days earlier and secretly planted two loaded pistols near the wood yard. On the day of the escape and armed with a BAR, Clyde and an accomplice named James Mullen crept into the woods of the prison farm. Bonnie sat in the getaway car nearby. Hamilton and his buddy, Joe Palmer, who was also serving time at the farm, hid the pistols in their clothing until an opportunity arose. When the prison guards approached to talk with each other, Hamilton and Palmer brandished their .45s and shouted. Major Crowson, the officer on horseback, raised his rifle as both prisoners fired. Hit in the head and stomach, Crowson slumped, mortally wounded. At that point, Clyde opened up with his BAR providing covering fire for his friends. One outgunned guard managed to return fire but Hamilton, Palmer and two bonus convicts piled into Clyde's getaway car and made their escape.

For the final, famous ambush on May 23, 1934 near Gibsland, LA, Hinton and Alcorn carried their BARs. They were accompanied by Sheriff Henderson Jordan and Deputy Prentis Oakley, the Louisiana officers, and former Texas Rangers on special duty, Frank Hamer and Manny Gault. Hamer may have been armed with his Colt Monitor. When the shooting started, Hinton unloaded the entire 20-round magazine into the "death car," then picked up his automatic shotgun and quickly fired all five rounds. The car was still moving but out of control. Hinton and at least some of his comrades ran toward the car. He emptied the magazine of one of his .45cal automatics, then began firing a second pistol. When the firing ceased, Hinton watched as Bonnie's body slumped out of the opened passenger door. As he stood her body up he remarked on the smell of light perfume, mingled with the sweet smell of blood, and burnt cordite.

Although their car was loaded with four BARs and several pistols, Bonnie and Clyde never fired a shot. According to Hinton's memoir, *Ambush: The Real Story of Bonnie and Clyde*, at least one member of the group had seen



Clyde lift up the BAR positioned at his knee as he drove near the lawmen. They soon discovered that Clyde's BAR had been hit and damaged by one of their bullets. They guessed that Clyde must have immediately abandoned the automatic rifle and reached for another weapon because they found him dead with an unfired pistol clutched in his hand.

It was perhaps more from desperation than anything else that the lawmen felt that they needed to match Clyde's BARs with like weapons of their own. John Browning's automatic rifle served them well in this situation largely because of their tactical planning. They were shooting in a single line formation from a raised embankment down toward the fugitives' car. They had stationed themselves in a remote area with no bystanders (or witnesses, except for Henry Methvin's father, Irvin). With only an occasional car or logging truck seen on the road, there were no civilian vehicles present during the shooting. All of their bullets would strike Clyde's car or bore into the road or ground nearby.

For most situations, however, the BAR would not have been a good choice for law-enforcement work – especially in an urban setting. The .30-06 round from a BAR had a maximum range of nearly two miles. It could not only fire straight through the outer wall of the typical wooden dwellings of the day, it could send 20 rounds through a wall in a couple of seconds, likely killing or injuring innocent people. Fortunately for the public at large, except while stealing cars, guns and cash, the Barrow Gang avoided populated areas for the most part, mainly to avoid detection and capture. Many of their bloody exchanges with the police took place in the country or on farmland, and it would be safe to conclude that without their BARs it is extremely unlikely that Bonnie and Clyde could have survived for as long as they did.

FBI special agents are training to use automatic rifles and other firearms at Quantico, VA. At least three Colt Monitors can be seen in this photograph, distinguishable by their Cutts compensators. Several men are holding M1918 military BARs. (NARA)

WORLD WAR II

Light machine guns and automatic rifles

The automatic rifle is by definition a compromise between the infantry rifle and the light machine gun. During World War II, the US infantry employed the air-cooled .30cal Browning M1919A4 (later updated to the M1919A6) machine gun as a crew-served light machine gun, but deployed at the platoon level, whereas the BAR was deployed at the squad or fire-team level. The BAR was also designated a crew-served weapon during World War II and Korea, with one gunner and one ammunition carrier, but in many cases – due to combat casualties, or if tactical conditions required the two to separate – the BAR man operated without his ammunition carrier and could still keep up with his squad. The .30cal machine gunner, on the other hand, would have found it quite difficult to carry his machine gun alone (weighing about 32lb/14.5kg), plus his tripod and boxes of ammunition, and still keep up. The water-cooled M1917A4 Browning .30cal machine gun, which was still used during the Korean War, was considered a heavy machine gun with the additional weight of its water jacket and water can, and because it could maintain a higher rate of sustained fire than its air-cooled cousin due to the superior cooling system. Both machine guns, also firing the same .30-06 rounds as the BAR, could easily outlast the BAR in terms of sustained fire.

The BAR's barrel simply could not cool fast enough to allow the weapon to function as an adequate light machine gun, and it lacked a quick-change facility. Once in combat, however, many BAR men had no choice but to use their weapons as such – in an attempt to save their own life or the lives of their comrades, they would continue to fire their BARs until the barrel overheated to the failure point.

Like the Browning .30cal machine guns – either air-cooled or water-cooled – the German MG 34 and MG 42 could also sustain a higher rate of fire than the BAR, but considering the fact that more than one BAR man recklessly charged and defeated well-emplaced German machine gunners, the BAR certainly had its place on the battlefield. Lighter and more portable than the German light machine guns, the BAR traded sustained firepower for mobility – in keeping with its original design function, as a machine-gun-killer.

During World War II the US Army infantry rifle company consisted of about 200 men and six officers divided into three rifle platoons, a headquarters unit, and a weapons platoon. Each rifle platoon consisted of three 12-man squads typically equipped with one BAR and 11 M1 Garand rifles. The composition of the US Marine rifle squad

American troops at Livorno (Leghorn), Italy have set up their Browning .30cal water-cooled machine gun. The BAR seen to the right of the machine gun is fitted with an issue M1918A2 cloth web sling. (NARA)





In sub-freezing and sub-zero conditions the gunner could fire the BAR regularly to ward off the "frost lock" which would disable the weapon. Of course, firing the weapon would give away the gunner's position and use up valuable ammunition. Gasoline would also counteract the effects of frost lock. (Armor Plate Press)

evolved during the course of the war. In 1941, one BAR man and eight riflemen, which included the squad leader, comprised the nine-man Marine rifle squad. Just over a month after the attack on Pearl Harbor, the Corps, at least on paper, strengthened the squad to 13 men, but still maintained only one automatic rifle per squad. With experience gained while fighting in the Pacific, combat Marines felt that they needed more firepower, and in April 1943 the squad organization changed to a 12-man unit outfitted with two BARs. As the fighting continued, Marines found that even two BARs per squad proved inadequate and in May 1944 the squad composition changed once again. The Corps standardized the squad into a 13-man unit divided into three four-man fire teams. A sergeant served as squad leader while each fire team consisted of one corporal acting as team leader, one BAR man, one assistant BAR man, and one rifleman. Except for the BAR man, all members of the fire team were armed with M1 Garand rifles. At full strength, each platoon included one Navy Corpsman and 42 Marines equipped with an impressive arsenal of nine automatic rifles.

For both Army and Marine infantry squads, the BAR was intended to be deployed in two-man teams with one man acting as gunner while the assistant BAR man carried extra ammunition. The assistant also carried an M1 Garand. For the Marines, the assistant BAR man was considered the lowest man in the fire team and the job usually went to the new guy. Sometimes on the march, the assistant would hand over his

Squad automatics, 1903–53: a comparison

Model	Principal user	Weight	Feed system	Maximum rate of fire
8mm Madsen M1903	Denmark, from 1903	22lb	Magazine (box, 40-rd)	450rpm
8mm Hotchkiss M1909	France, from 1909	27lb	Strip (24-rd, 30-rd)	600rpm
.30-06 Benét-Mercié M1909	USA, from 1909	33lb	Belt (50-rd)	600rpm
8mm Chauchat	France, from 1915	20lb	Magazine (box, 20-rd)	250rpm
.303 Lewis Mk I	UK, from 1915	26lb	Magazine (pan, 47-rd)	550rpm
7.92mm MG 08/15	Germany, from 1915	39lb	Belt (250-rd)	450rpm
.303 Hotchkiss Mk I	UK, from 1917	27lb	Strip (30-rd)	500rpm
.30-06 Lewis	USA, from 1917	26lb	Magazine (pan, 47-rd)	500rpm
.30.06 Chauchat	USA, from 1917	20lb	Magazine (box, 20-rd)	250rpm
7.92mm MG 08/18	Germany, from 1918	37lb	Belt (250-rd)	450rpm
.30-06 M1918 BAR	USA, from 1918	15.5lb	Magazine (box, 20-rd)	550rpm
.30-06 M1922 BAR	USA, from 1922	20lb	Magazine (box, 20-rd)	550rpm
6.5mm Type 11	Japan, from 1922	22.5lb	Magazine (hopper, 30-rd)	500rpm
6.5mm Kg m/21	Sweden, from 1923	19.5lb	Magazine (box, 20-rd)	500rpm
7.92mm ZB vz.26	Czechoslovakia, from 1926	21.16lb	Magazine (box, 30-rd)	500rpm
7.92mm wz.28	Poland, from 1928	13lb	Magazine (box, 20-rd)	600rpm
7.62mm Degtyaryov DP	USSR, from 1928	20.1lb	Magazine (drum, 47-rd)	600rpm
7.5mm FM 24/29	France, from 1929	20.37lb	Magazine (box, 25-rd)	500rpm
7.65mm FN M1930	Belgium, from 1930	17lb	Magazine (box, 20-rd)	500rpm
6.5mm FM Breda 30	Italy, from 1930	22.5lb	Integral box magazine (20-rd)	475rpm
7.92mm MG 34	Germany, from 1934	26.7lb	Belt (250-rd) or saddle drum (75-rd)	900rpm
.303 Vickers-Berthier Mk III	India, from 1933	20.72lb	Magazine (box, 30-rd)	500rpm
6.5mm Type 96	Japan, from 1936	20lb	Magazine (box, 30-rd)	550rpm
6.5mm Kg m/37	Sweden, from 1936	20.9lb	Magazine (box, 20-rd)	550rpm
.30-06 M1918A1 BAR	USA, from 1937	17.4lb	Magazine (box, 20-rd)	550rpm
.303 Bren Mk I	UK, from 1938	22.38lb	Magazine (box, 20-rd)	500rpm
.30-06 M1918A2 BAR	USA, from 1939	19.4lb	Magazine (box, 20-rd)	550rpm
7.7mm Type 99	Japan, from 1939	23lb	Magazine (box, 30-rd)	850rpm
7.92mm MG 42	Germany, from 1942	25.5lb	Belt (50-rd)	1,200rpm
7.92mm FG 42	Germany, from 1942	9.92lb	Magazine (box, 20-rd)	750rpm
7.62mm Degtyaryov RPD	USSR, from 1944	15.43lb	Belt (100-rd)	700rpm

M1 and carry the BAR for a while to even out the burden. Once in combat, however, the BAR team was often reduced to a “one-man BAR.” Two men working closely together could prove hazardous and the BAR man was already a prime target for enemy soldiers – for good reason, since the BAR presented the greatest immediate threat from an American infantry squad.

Just as in World War I, the BAR served in a mutual-support role and proved effective against enemy machine guns. It also worked well as an anti-sniper weapon, not just in the jungles of the Pacific but also in the towns and forests of Europe. American troops also relied on their BARs to deal with hostile enemy positions that were too close for mortars and too far away for hand grenades.



The automatic rifle in Europe: Normandy and Italy

Although the BAR usually drew enemy fire, many of the American soldiers fighting in Normandy on D-Day wished that they had more than one BAR per squad. In some cases a functioning BAR was the only thing that kept a mauled and demoralized platoon from getting overrun by German troops who in some areas were armed with far more automatic weapons than the Americans. The World War II US Army rifle squad was based around the riflemen with their semi-automatic M1s, with light support from the BAR. Although smaller than the American equivalent, with a paper strength (in 1944) of nine men as opposed to 12, each German infantry rifle squad was based around one or sometimes two light machine guns, supported by 9mm submachine guns and Mauser bolt-action rifles. With a quick-change barrel

A BAR man of the 1st Division USMC on Wana Ridge, Okinawa. His weapon's M1918A2 flash hider is still attached but the bipod is missing. The T4 carrying handle, which was adopted on December 21, 1944 as auxiliary equipment, also appears to be missing. (Armor Plate Press)

and belt-feeding, and capable of being fired from a bipod, tripod, or the hip, its MG 34 or MG 42 was capable of inflicting sustained fire at up to 1,200rpm, limited largely by the amount of ammunition the squad could carry.

On D-Day, with much of the 116th Infantry, 29th Division already on Omaha Beach and well bloodied, the command group arrived on an LCPV (landing craft, vehicles and personnel), which promptly ran into a beach obstacle. As the LCPV weathered German machine-gun, artillery and mortar fire, the ramp dropped. Three men were immediately killed but the commander of the 116th, Col Charles Canham, jumped out firing a BAR. After a German bullet ripped the BAR from his hands he drew his .45 and continued firing. A short while later, BrigGen Norman Cota, the 29th's second-in-command, went over to the seawall to reassure his troops. While exposed to German fire Cota directed the placement of a BAR. He had arrived on the same LCPV as Col Canham.

Elsewhere on Omaha Beach Lt John Spaulding, a platoon leader in E Company, 16th Infantry, 1st Division, had got most of his platoon across the seawall and part way up the bluff. A lone machine gun took out three of his men including a BAR man. Spaulding ordered a charge and the platoon overran and captured the machine gunner. Going further up the bluff, Spaulding used the same platoon assault tactics recommended by Gen Pershing more than 25 years earlier – take advantage of whatever cover the local terrain offers. In taking the next machine gun, Sgt Clarence Colson advanced firing from the hip. Colson burned through rounds so quickly that his assistant BAR man found it nearly impossible to keep him supplied with fresh magazines.

Once the fighting moved off the beaches and progressed further inland, GIs used grenades and their BARs to blast the German defenders holed up inside the formidable stone houses. As Col Canham tried to establish his command post, he and his headquarters group found themselves isolated near the chateau he planned to use. A platoon of Rangers happened to come



Troops of the 13th Infantry Regiment in action at La Haye-du-Puits, Normandy. With fewer automatic weapons than their German counterparts, infantry squads in Normandy prized their BAR men. (Armor Plate Press)



A BAR man covers a captured German with his "modernized" M1918A2. The soldier seen here probably hasn't been a BAR man for very long. He is wearing an M1923 rifle belt, not an M1937 BAR ammunition belt. He may have picked up the weapon from a fallen comrade. (Armor Plate Press)

by and Canham commandeered them to serve as his post guard. In taking the chateau, the Rangers quickly ended up with 25 "German" prisoners who were more than willing to surrender. Only the NCO was actually German while the rest were apparently Russians, Hungarians, and Romanians. Without even enough men to defend his sector of the line, Canham could not spare troops for prisoner duty. Finally, the prisoners were bunched together and one man with a BAR watched over them. The prisoners caused no trouble.

During the fighting in Italy in 1945, 2Lt Vernon J. Baker of the 370th Infantry, 92nd "Buffalo" Division, made excellent use of one of his BAR men. Baker had previously lost one of his platoon's other BAR men in an action at a small town north of Lucca, Tuscany, in fall 1944 while elements of the segregated Buffalo Division continued to arrive in Italy. Baker was ordered to get his platoon across a bridge and divide his squads. The town had been quiet and Baker sent two riflemen and one BAR man along the slope of a canal. A German machine gun opened up and the two riflemen immediately went down. The BAR man, Eldridge Banks, turned and got off a few rounds before the machine gun killed him too.

Several attempts to take out Castle Aghinolfi, a German stronghold, had failed in the intervening months. Hills X, Y, and Z formed the largely exposed approach to the castle. On April 5, 1945, Baker, now in charge of the weapons platoon for the already understrength C Company, helped make the assault on Hill X toward the castle. Baker took out two machine-gun positions and an observation post with his M1 Garand. The lead elements of C Company reached within 250yd of Castle Aghinolfi but without support from the rest of the battalion. Mortar fire was becoming heavier and the German machine gunners were training in on their position. The group had taken about 60 percent casualties. The men of his weapons platoon had used all of their ammunition so Baker rearmed them with M1

Two young men with the Americal Division are swapping stories about their recent exploits fighting Japanese troops at Bougainville in August 1944. The man on the left holds a World War I-vintage M1918 BAR completely unmodified except for the missing flash hider. (NARA)



Garands taken from the casualties. Baker began organizing a withdrawal of his wounded when a sniper killed his medic.

BAR man Pvt James Thomas had previously been a sergeant until his temper and alcohol had got him kicked back down to private. Baker, who typically carried an M1 Garand himself, noted that many of the BAR men he knew were as stout as timbers, and to paraphrase the lieutenant, Thomas was a hefty man who could have been a boxer or a weightlifter. The BAR appeared as light as balsa wood in his hands. He swung into action.

Thomas shouldered his BAR and killed the sniper. Two German machine guns were still active nearby, threatening the withdrawal. With Thomas' BAR providing cover, Baker held his M1 in his arms as he crawled toward the first machine-gun bunker. Surprisingly, Baker wasn't worried about the machine gun – his greatest fear at the time was that Thomas might accidentally shoot him in the rear end with the BAR. Moving to the back of the timber-and-earth bunker, Baker tossed a grenade into the entry port, killing the gun crew. Thomas moved in closer to cover Baker's crawling approach to the second bunker, which they eliminated in the same textbook fashion. For his actions that day and the next, 2Lt Baker was awarded the Congressional Medal of Honor, although he would have to wait more than five decades before he could receive it. He was originally presented with the Distinguished Service Cross.

While BAR men often worked in concert with other troops during an engagement they sometimes constituted a one-man assault force of their own. If the right circumstances presented themselves, a single BAR man could take out a half-dozen enemy troops with one quick burst. TSgt Clinton M. Hedrick with I Company, 194th Glider Infantry, 17th Airborne Division landed near Wesel, Germany in late March 1945. Spearheading the attack on the town and castle of Lembeck, Hedrick's unit comprised the assault platoon. On three separate occasions the airborne troops were stopped by heavy German automatic fire from staunchly held positions. On each

occasion Hedrick, utterly ignoring the enemy bullets, dashed toward the Germans firing his BAR from the hip. The rest of the lead airborne troops were so inspired by their tech sergeant that they too vigorously attacked the German positions and rapidly overwhelmed the defenders. A group of Germans tried to outflank the oncoming Americans. Hedrick spun around and killed all six German soldiers with one quick burst from his BAR. Later the remaining Germans made their way across a moat seeking the relative safety of Lembeck Castle. Completely alone, Hedrick dashed across the drawbridge to pursue the fleeing Germans. One German soldier raised his arms and told the intrepid BAR man that the entire garrison wanted to surrender. By this time more of the airborne troops had reached the castle, and Hedrick and four comrades entered the castle yard to negotiate the surrender. As the five Americans entered a sally port they were immediately blasted by a German self-propelled gun. Hedrick, while mortally wounded, remained behind and continued firing at the German gun, giving his comrades a chance to escape. Although the Americans soon took control of the castle, Hedrick died while his comrades were attempting to evacuate him. TSgt Hedrick was posthumously awarded the Congressional Medal of Honor and is buried in Germany Valley at Riverton, WV.

On November 13, 1944 SSgt James J. Spurrier Jr of the 134th Infantry, 35th Division earned the nickname “the One-Man Army” while fighting at the village of Achain, France. Some considered Spurrier to be comparable to the legendary Sgt York of World War I. While his company went into action east of Achain, the staff sergeant ended up making a single-handed assault on the village. At various points, Spurrier used a BAR, an M1 Garand, both German and American rocket launchers, hand grenades, and a German machine pistol in his lone attack on the German forces who were desperately trying to kill him with machine guns and small arms. When the dust finally settled, 24 German soldiers and one officer were dead, two German officers and two enlisted men were captured, and the indefatigable staff sergeant controlled the town of Achain. SSgt Spurrier received the Medal of Honor.



Making adjustments? Over the years, a variety of spare parts and tool kits were issued for the BAR. One of the earlier kits, apparently still used during World War II by those gunners fortunate enough to get one, came in a leather box specifically sized to fit into one of the BAR ammunition pouches in lieu of the two magazines. The kit included a Mark II oil can, a combination tool, a Mark II ruptured cartridge extractor, a gas cylinder cleaning tool, a recoil spring, two firing pins, as well as a variety of other springs and pins. Later kits included cleaning rods and brushes and even a black rubber magazine dust cap. (Armor Plate Press)



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The BAR in the Pacific: Kwajalein and Okinawa

The BAR played a crucial role in the ground war in Europe, but arguably played an even more important part in the Pacific Theater. Like their German equivalents, at the outbreak of the Pacific War the Japanese rifle platoon was based around the aggressive use of automatic firepower, rather than the rifleman. Three of the four 13-man sections in a rifle platoon were armed with a light machine gun each (and actually designated “light machine gun sections”), with the fourth a grenadier squad. Their light machine guns were the magazine-fed 6.5mm Type 96 and 7.7mm Type 99, both based on the same Brno design that the British Bren was derived from. By the time of the desperate island campaigns in 1944–45 the Marines’ experience had made them realize the importance of automatic firepower, and their official issuance of BARs had been tripled. The fact that – at least late in the war – every Marine fire team came to the front with a BAR gives an idea of how significant the Browning automatic was to the Marines in particular during the various island campaigns.

The US Army made good use of their BARs too. On January 31, 1944, the Army’s 7th Division, along with naval and air support, was given the task of wresting control of the islands of the Kwajalein Atoll, in the

The anti-sniper BAR (previous pages)

During World War II two-man teams consisting of the gunner and his ammunition carrier brought the BAR onto the battlefield. One of the greatest problems facing the teams, other than the inevitable battle casualties, was that the carrier often had trouble keeping up with his gunner on the move, often leaving the gunner low on ammunition. Additionally, two men moving too close together presented a greater target for enemy troops.

BAR men were often called upon to eliminate an enemy sniper when in range like this BAR man attempting to dispatch a German sniper in the bell-tower. The M1918A2 depicted here with members of the 92nd “Buffalo” Division in Italy is a “modernized” World War I-era M1918. John Browning’s original BAR weighed 15.5lb (7kg) unloaded, and the hinged butt plate, magazine guides, bipod, and later the carry handle added nearly 5lb (2.3kg) to the weapon’s weight. Another “modernization” carried out by Ordnance involved cutting off the top section of the walnut wood forearm to allow for faster barrel cooling. This improvement potentially exposed the gunner’s fingertips and thumb to contact with the extremely hot barrel. The brand new M1918A2s, which first saw production in 1943, featured a shorter, lower forearm with a more ergonomic grip similar to the ones found on Colt’s commercial models. During the war GIs often discarded the bipod, butt plate, and even the new flash hider but usually kept the magazine guides in place. Sometimes BAR men left their bipods with the mess crew who would later rejoin the combat forces once the battle lines were stabilized.

The BAR men of World War II typically wore the M1937 BAR ammunition belt, which featured three pouches per side, altogether holding 12 BAR magazines containing a combined total of 240 rounds. The 20-round magazine load often included a tracer at every fifth round for target-sighting purposes. The BAR men tried to save their empty magazines, which were not always easy to replace in combat. They could and did reload their empties with unused rifle clips taken from comrades in the company or from casualties. The BAR man seen here has stuffed an empty magazine into the right bottom pocket of his jacket for later use.

Marshall Islands, from their Japanese defenders. MajGen Charles H. Corlett, commander of the 7th, had to divide his forces up into separate combat teams and distribute them among the various islands. The size of each combat team would depend on the size of each island and the number of Japanese troops that the Americans expected to encounter.

While American machine gunners were busy engaging an enemy position, the far more mobile BAR men were often used to protect their flanks from counterattack. During one leg of the fighting, a machine-gun platoon and a nearby rifle platoon occupied some trenches and a damaged pillbox – recently abandoned by Japanese soldiers, who were however still very much in the fight. Rainwater from a heavy downpour began to fill the trenches. The Americans set up their water-cooled machine gun inside the pillbox but the gun soon jammed. BAR man Pvt Herman P. Bennett had positioned himself to the right and just ahead of the machine gunners to offer them protection. In the meantime, the Japanese soldiers were fighting back fiercely with hand grenades and “knee-mortars.” It didn’t take long before they got the range on the American gun. As Pvt John Marcum tried to unjam his gun, a shell from a “knee-mortar” landed right on top of it, sending him flying into a trench. The water jacket and tripod were destroyed and all three gunners were wounded, including Marcum who lay unconscious somewhere in the darkness. Sgt Robert L. Seymour moved into the pillbox to assist and evacuate his wounded gunners. Then Seymour crawled over to Bennett’s position to find out what was happening with the BAR and why it wasn’t putting more pressure on the Japanese mortar men. Bennett was already dead. Lt Jack Prizer, the platoon commander, managed to rally some of his men who were falling back from the collapsing lines. Prizer soon discovered that he didn’t have any fragmentation grenades, most of the M1s were not functioning properly because of the heavy rains, and he had no BAR men left. Prizer called for help. Battalion headquarters chalked up one machine-gun platoon and several rifle squads as a loss.

During another part of the fight for control of Kwajalein Atoll an American platoon near the beach came upon a large pig pen and a shed. Vines and debris covered much of the pen, offering substantial concealment for the Japanese soldiers waiting in ambush. As the lead scout, PFC Vern Howell began to move around the pen, whereupon the Japanese fired upon him. Howell slumped against the rail but didn’t fall down. The sight of Howell, whether wounded or dead, still standing in the midst of a firefight proved somewhat unnerving to the rest of the platoon. PFC Edwin Jeffers, one of the platoon’s BAR men, rushed up and fired through a gap in the enclosure until his platoon leader ordered him back. At this point, the medic arrived at the front and asked a sergeant if he could get to Howell. The sergeant told the medic that he would have to

A BAR man photographed in action near Marpi airstrip, Saipan, during the Mariana campaign. (Armor Plate Press)



make that decision himself. After making a quick scan of the area the medic sprinted toward Howell. Jeffers couldn't simply stand by and watch. He hefted his BAR and ran after the brave medic. Jeffers immediately laid down a covering fire but the two men couldn't do a thing for Howell – he was dead. Jeffers and the medic dashed back to their own lines.

Across the Pacific, BARs were used extensively against dugouts and tunnel entrances. On Kwajalein, another platoon was advancing against a blockhouse when one of the staff sergeants nearly stumbled into a large and well-concealed hole. SSgt Mitchell L. Nahas grabbed one of the BAR men and crouched down next to the hole. They could hear soldiers talking inside. The sergeant and the BAR man blasted the entrance to the hole. After they stopped firing, they listened again and this time they heard five separate explosions. The Japanese were apparently committing suicide with their grenades. Nahas still didn't trust the situation, so he grabbed a flamethrower and doused the hole until the tank ran out.

Near the seawall another group of 7th Division men were charged with taking out the Japanese gun emplacements. Capt Pence called for volunteers and a BAR man and a sergeant stepped forward. On entering the first gun emplacement they found no Japanese soldiers, but they did notice a sizeable trapdoor made of steel. Sgt William Breuer called the captain over and they got a satchel charge ready. While PFC Hollers covered the opening with his BAR, Sgt Breuer opened the steel door. Capt Pence dropped in the satchel charge just before all three men jumped over the wall to safety. The charge blew the emplacement to pieces, but the small demolition party tossed in a

Photographed on Guam, this M1918A2 is something of a hybrid "modernized" BAR. The weapon appears to have a hinged butt plate and the retrofitted T2 magazine guides are screwed on to the trigger guard assembly, but the forearm looks the same as it did during World War I. On most "modernized" M1918A2s the existing forearm was cut down to expose the barrel for faster barrel cooling and a metal heat shield was placed between the barrel and the forearm to protect the walnut wood. (Armor Plate Press)



few hand grenades for good measure. When the dust had settled they noticed several badly mauled bodies in the lower level. The same methods were used on the other gun emplacements.

The Americans also encountered numerous “spider holes” just large enough to conceal one or two men. Ebeye Island in the Kwajalein Atoll was full of them. By this point all of the main structures on Ebeye were already pounded into rubble and the defenders had no usable pillboxes. The only defensive structures left were the spider holes and an occasional log redoubt. The holes and redoubts were covered with palm fronds or tin sheeting and were impossible to spot from more than 10ft (3m) away. To make matters worse, the islands were naturally covered with fronds and other debris from the rough weather. The American ground troops discovered – the hard way – that they had to locate and attack every spider hole in their vicinity if they didn’t want to get picked off by a hidden sniper.

When Sgt Roger Horning spotted a Japanese machine gun near the beach, he fired and hit the gun’s magazine with his M1 Garand, which severely damaged it. When he went over to the gun pit to look inside he discovered a Japanese soldier. Horning tossed in a grenade, which failed to explode. He crawled back and found that his men had no more grenades left. The flamethrower was inoperable so he alerted two BAR men, grabbed a satchel charge and – with the BAR men providing covering fire – returned to the pit. The satchel charge failed to have much effect so the BAR men advanced on the pit, firing the whole way. One of the BARs jammed and the second one burned through all of its ammunition. The automatic riflemen retreated back to correct the problem and get more ammunition. Horning then suggested that one of them provide covering fire while the other reserved his ammunition for the pit itself. This tactic seemed to work well.

Throughout the fighting in the Pacific the BAR proved an excellent weapon against snipers in treetops. A BAR could cut a tree to pieces, and even if the sniper remained hidden a few bursts of automatic fire would soon eliminate any enemy soldier tucked into the foliage or fronds. For the men of the 7th Division, however, the anti-treetop tactic backfired at first. As they advanced, more and more men would shoot at the treetops and when they encountered no snipers in the trees they assumed that they were in a safe area. Before long, several Americans were hit by sniper fire coming from behind them. They had paid too much attention to the treetops, and neglected to check for spider holes in the piles of debris and broken fronds on the ground, in which the snipers lay. They quickly began tossing grenades or firing a few rounds from a BAR into every pile of junk or downed foliage that looked suspicious. One BAR man, PFC James H. Gatlin, launched his own campaign after he noticed a pile of fronds move. He fired into it and killed two Japanese soldiers hidden underneath.



On Okinawa a BAR man leads the rest of his unit forward through the rubble. In urban combat the BAR’s .30-06 round could easily penetrate brick walls. (Armor Plate Press)

Shooting the BAR

After pulling back on the operating handle, which chambered the first round, the BAR man clicked the selector switch off "safe." On the M1918A2 the selector switch determined the automatic rate of fire: either automatic-slow at 350rpm or automatic-fast at 550rpm. Some BAR men in World War II considered the lack of single-shot capability, as found on the original M1918, rather inconvenient. After World War I, military planners considered the cyclic rate of 550rpm too inaccurate for many situations and so they decided to eliminate the semi-automatic capability in order to provide a slower automatic option. Using the automatic-slow rate and a deft pull of the trigger a very skilled gunner could actually crack off one round at a time. While the gunner used the iron sights to get the range on a target he also watched the dirt and debris kicked up by impacts, as well as tracer rounds, to determine whether his rounds were actually hitting the target. Despite the fact that the BAR could fire at a cyclic rate of 550rpm the BAR gunners of World War I actually suffered less fatigue shooting from the shoulder than their comrades with the standard M1903 Springfield infantry rifle, when firing a comparable number of .30-06 military cartridges. The recoil of the Springfield rifle was absorbed by the shooter's shoulder while much of the recoil of the gas-operated BAR was absorbed by the system's buffer assembly. By 1941 the M1 Garand, also a gas-operated weapon, was becoming the standard infantry rifle, which greatly reduced shooters' fatigue.

After expending the 20-round magazine the gunner pressed the magazine-release button. Occasionally a magazine would stick, and the gunner would have to manually pull out the magazine while still depressing the release button. BAR men usually tried to keep their empty magazines, often stuffing them into a pocket or an opened jacket. The spent magazines were often not easily replaced in the field and they could always be reloaded manually.

One of the greatest criticisms leveled against the BAR centered on its lack of a quickly demountable barrel. Unable to change a hot barrel, many BAR men, usually in utterly desperate situations, continued to fire until the weapon overheated and failed. The M1922 Cavalry model had a heavy finned barrel and a cut-down forearm to allow for faster barrel cooling; the "modernized" M1918A2 retained the latter feature for the same reason.



ABOVE A BAR man is exchanging shots with Japanese troops at Corregidor in the Philippine Islands in 1945. Note the corrugated tin to his right. When fighting Japanese soldiers BAR men soon learned to shoot both into the treetops to eliminate snipers and into piles of debris, such as this corrugated sheeting, which could conceal an enemy soldier in a "spider hole." (Armor Plate Press)

The BAR held up fairly well in sub-zero temperatures and firing the weapon regularly helped prevent frost-lock. Like most firearms, the BAR needed proper cleaning and lubrication in order to prevent jamming or complete fouling. From World War I through the Korean War many BARs were rendered completely useless due to mud and rust. This was not a result of willful neglect by the gunner. Once on the march BAR men had no time to clean their weapons and to complicate matters further, once in combat they sometimes had no wire brushes, solvents, oil, or even gasoline to keep a weapon clean. In the muddy trenches of World War I some BAR men could not even find a scrap of dry cloth for cleaning. Sometimes the regulator (located at the forward end of the gas-cylinder tube, which regulated the amount of gas that passed into the cylinder to power the automatic cycling) would rust completely stiff. After proper cleaning, a previously rusted weapon usually functioned as normal. During the Korean War some BAR men were issued nylon gas pistons to replace the factory steel gas piston (located inside the gas-cylinder tube). Once the carbon deposits built up on the nylon gas piston the gunner simply removed the used piston and inserted a new one.

He then went on spraying every debris pile as he went. Gatlin would hold the BAR sideways and sweep to the right, then turn the weapon completely over and sweep to the left. The M1918A2 was a fairly heavy weapon especially with the bipod attached and it didn't suffer from an undue amount of muzzle climb, but it did exhibit some when fired on automatic-



This BAR man appears to have a couple of empty magazine pouches. In addition to the 12 loaded magazines carried in the M1937 BAR ammunition belt, BAR men often liked to carry extra magazines when they could get them – one in the weapon and about three more in their pockets. Even during the Korean War extra BAR magazines were in short supply at the front. According to S.L.A. Marshall's findings, many BAR men in Korea carried only six to eight magazines and some gunners carried as few as four magazines. (Armor Plate Press)

fast. By holding the weapon at the horizontal, Gatlin used whatever muzzle climb he experienced to assist his right and left sweeps. The American troops considered the BAR an outstanding weapon for eliminating snipers either in the trees, or hidden in shallow covered holes in the ground.

During the bitter fighting at Okinawa in spring 1945 BAR men were in high demand. The fighting had become so intense that the commander of the American ground forces, LtGen Simon B. Buckner, was killed in action when a Japanese artillery shellburst dislodged a large chunk of coral which smashed straight into the general's chest. He died within ten minutes. The next day, on June 19, BrigGen Claudius M. Easley was hit and killed

A BAR man of the 96th Division, on Okinawa in June 1945. This new-production M1918A2 is missing the carrying handle, bipod, and flash hider. Some gunners felt that it was unwise to discard the flash hider because it greatly reduced the amount of blinding light produced by the muzzle blast during firefights at night. (Armor Plate Press)





During World War II, the US Army officially set the BAR crew at three men – a carryover from World War I – at least on paper. As it turned out, the Army BAR crew usually consisted of two men – a gunner and his assistant who carried extra ammunition – or simply a lone gunner. Interestingly, as S.L.A. Marshall discovered during the Korean War, the riflemen in the Army squads valued their BAR man so highly that they willingly carried extra ammunition for him. Infantrymen don't usually *volunteer* to carry extra weight. (Armor Plate Press)

by machine-gun fire. Neither did the commander of the Japanese forces at Okinawa survive the campaign. When all hope was lost, and for failing to stop the American onslaught, LtGen Mitsuru Ushijima and his chief of staff, LtGen Isamu Cho, ended their own lives. In the early hours of June 22, Ushijima, dressed in his field uniform, and Cho, dressed in a white kimono, stepped out the entrance of their command post on Hill 89, sat on a quilt and committed ritual *hara-kiri* as American grenades exploded nearby.

During the fighting for Kakazu West only one American company remained on the crest. The Americans and Japanese were so close that they duelled with each other with hand grenades and even satchel charges. An American machine gunner burned through six boxes of ammunition before falling mortally wounded. PFC Joseph Solch, the lone survivor of his squad, stood up, exposing himself to enemy fire, and managed to unload three full magazines from his BAR at the oncoming Japanese troops, killing 15 of them.

Later one man, practically alone, stopped a counterattack bent on driving the American forces off the slopes of Kakazu Ridge. Using a BAR, an M1 Garand, grenades, a trench knife, and a bayonet, TSgt Alfred C. Robertson killed about 28 Japanese troops who were trying to throw him off the ridge. Robertson also called in a mortar strike after serious wounds took his radio operator out of action.

Back on Kakazu West a couple of days later, a number of Japanese troops had broken through the American lines. A BAR man watched as one group got close to him. With a quick burst he shot an officer and ten soldiers who were, unwisely, following in single file and completely exposed.

During the fighting for Nishibaru Ridge later in April, heavy machine guns were brought up the northern slope by members of the 382nd Infantry

to help stymie a counterattack. One gunner was killed just after getting the tripod set up. SSgt David N. Dovel then grabbed the water-cooled machine gun and fired it from the hip like a BAR. Dovel zigzagged as he moved along to keep from getting blasted by knee-mortars. A second gun was hit and destroyed as soon as it was set up but the gunner, Sgt John C. Arends, and 1Lt John M. Stevens each grabbed a BAR and headed over the crest, firing as they went.

In early May, the Japanese defenders on Tanabaru Escarpment managed to hold off several American companies for a time. Finally, after a heavy bombardment of 81mm mortars had pounded the trenches of Tanabaru, the American infantrymen took the crest. They discovered the assortment of both Japanese and American equipment that had been used against them. In addition to several Japanese machine guns, knee mortars, and a 75mm pack howitzer, the defenders also had several Thompson submachine guns, American carbines, one light machine gun, and two BARs. Interestingly, some Belgian-manufactured BARs, FN Modèle 30s, were found with Japanese troops elsewhere, notably in the Philippines. It has been speculated that the Modèle 30s had been captured from the Chinese, who were the original purchasers. The original Belgian markings had been filed off and replaced with Japanese markings.

One of the greatest problems facing the American troops at Okinawa was the extensive network of tunnels and caves used by the defenders. The Japanese were heavily dug in and difficult to dislodge. The Americans relied on demolition teams and flamethrowers to get at the Japanese, and the BAR men were used as close support for the specialized teams or were members of the teams themselves. When troops from the 383rd Infantry mounted Hill 150 and Hill 152 in the Maeda Escarpment they discovered about 600 Japanese troops uncharacteristically out in the open below them. American tanks and armored flamethrowers moved in at ground level and BARs,

Photographed in March 1945, a BAR man of the 22nd Marines on Okinawa. By the time of the island campaigns, the Marine Corps had adopted a four-man fire-team structure with one BAR per team – tripling the squad's automatic firepower. (Armor Plate Press)



machine guns, and rifles opened up from above. The Japanese at Maeda were butchered. One BAR man killed 30 soldiers by himself.

Usually the Japanese were not so exposed and had to be forced out of their tunnels and bunkers with napalm or sometimes with raw gasoline. Often demolition teams with infantry support would simply blow the entrances to caves and tunnels to trap the defenders inside. On other occasions engineers with 1,000-gallon (3,785-liter) water distributors would pump up to 700 gallons (2,650 liters) of gasoline into a bunker and then ignite the place with tracer bullets or phosphorus grenades. In these situations, the BAR men were often positioned to deal with any Japanese who remained alive.

The 713th Tank Battalion had been converted from a regular armored unit into the 713th Armored Flame Thrower Battalion for special assignment on Okinawa. Their medium tanks were equipped with special 300-gallon-capacity (1,136-liter) flamethrower guns mounted into the existing 75mm gun tubes. The wicked new weapons could spit out a deadly gasoline/napalm mixture with an effective range of 100yd (91m) and up to 125yd (114m). Combined infantry and armored flamethrower attacks became the standard method for dealing with trouble spots.

Artillery, tanks, and even Navy cruisers just offshore pummeled Hill 95 but they could not dislodge the Japanese in the heavily fortified bunkers on the rocky northeast end. A colonel called in a flamethrower tank. The commander of C Company, 713th, Capt Tony Niemeyer, sent one tank to the base of Hill 95. Knowing that the tank's napalm jet could not possibly reach the top of the hill, Niemeyer attached a 200ft (61m) hose to the tank, and with the help of two sergeants dragged the other end of the hose up the contested hill. Niemeyer scorched the Japanese bunkers and when the 35 to 40 men flew out of the entrance to escape the flames they were gunned down with BARs and rifles.



US Marines on Okinawa, demonstrating how to tackle Japanese holed up in the network of defensive caves and tunnels with grenades and a BAR. (Armor Plate Press)

KOREA

Barely five years after World War II ended, the forces of the United States and the United Nations were engaged with communist armies in Korea. American infantry units, to a large extent, relied on the same weapons and similar tactics to those they employed during the previous war.

One young Marine, PFC Herbert Luster with A Company, 5th Marines left a classic account of a BAR man in action. He had named his BAR “Peggy” after his sweetheart back home. Not long after arriving in Korea he received a Dear John letter from the real Peggy – a common enough occurrence for servicemen serving overseas. In order to offer him some consolation, perhaps, she assured him that she had left him for another Marine. He didn’t have the heart to change the name of his BAR.

Near the Naktong River, on August 17, 1950, the 5th Marines would mount an assault on Obong-ni Ridge – known to the troops as Bloody Ridge, No-Name Ridge, and also a host of far more obscene names. The 2nd Battalion would lead the attack, followed by 1st and 3rd Battalions. Each battalion was ordered to reach its own objective point; however, the fighting proved more difficult than expected. PFC Luster and his newly acquired assistant BAR man, PFC Baxter, took a break near the burnt-out hulk of a T-34 tank that had been destroyed by napalm the previous night. Unable to settle his stomach, Luster handed a can of fruit to his assistant. Already suffering from constipation as well as the Dear John letter, Luster found that his day was about to get a lot worse.

Luster, in the 1st Battalion, watched as numerous wounded men from the 2nd Battalion came streaming past. Luster’s fire team was ordered to move up past an American machine-gun position and cover the flank at a nearby saddle in the ridge. As he climbed the hill, Luster slung “Peggy” from his neck, so that he could keep his hands free but quickly return fire. Other BAR men in Korea did the same thing. With the extra-long sling there was enough slack for the weapon to dangle at the gunner’s waist.

The Marines spread out and took up their positions among the pines, but the ridge seemed too quiet considering the ongoing battle. Suddenly, Luster spotted several North Koreans crawling into the saddle and readying their machine guns. Another Marine fire team was unknowingly moving right into their line of sight. Luster’s sergeant had previously told him to reserve his grenades for night action, so he cocked the BAR, clicked off the safety, shifted his weight onto his right foot, and opened up on the North Korean machine gunners. As he emptied a full magazine he kept on target by watching the tracer rounds and dirt flying near the North Koreans. Luster moved the sling over his head and then hit the magazine release button, but for some reason the magazine failed to eject. He pressed on the magazine release with his right thumb, pulled the spent magazine out and stuffed it into his jacket. He inserted a fresh magazine and started to lift the BAR to his shoulder when dirt flew up into his face. The enemy machine-gun bullets ripped into his arm and smashed the BAR’s stock.

Luster fell back into a ditch and called out to his fire team for help. Just then, an American Corsair buzzed across the sky and fired upon the North Koreans. Hot spent cases from the aircraft’s machine guns scattered across

A BAR man with the Puerto Rican US 65th Infantry is engaging communist forces in Korea in 1951. He appears to be wearing a World War I-style second assistant gunner's BAR ammunition belt with two pouches (visible) for rifle clips. Other photographs from this period show that this man wasn't the only one equipped with a second assistant gunner's ammunition belt. (NARA)



the fire team's position, and Luster covered his head with his left arm to protect himself. Soon a pair of corpsmen evacuated the fallen BAR man to an aid station. From there he traveled by jeep, a field ambulance, and a train until he finally arrived onboard a hospital ship where he received surgery. PFC Herbert Luster lost not only both Peggys but also his right arm while serving in the Korean War.

Another Marine who participated in the battle, Capt Francis "Ike" Fenton Jr of B Company, 5th Marines, complained that they were losing too many BAR men. Not only were the men being taken out of action but like "Peggy," a significant number of BARs themselves were battle casualties and could not be easily replaced. Many of the Marine platoons that should have had nine BARs were now down to three or four. Capt Fenton also remarked that the web gear his men carried was falling apart due to the harsh weather and submersion in the rice paddies, and it was impossible to get replacement BAR ammunition belts.

Surprisingly, many of the hard-won combat lessons from World War II were forgotten and had to be relearned by fall 1950. The UN troops of Eighth Army suffered defeat at the hands of the Chinese Communist Forces (CCF) at the Chongchon River in November of that year.

One group of American soldiers who were attempting to unload supplies from a small convoy near the Chongchon River heard shooting in the distance. They took up positions several yards away from the vehicles as another group of soldiers came running by them. Sgt Charles Clark, not knowing whether the other soldiers were Americans or Chinese, ordered his men not to shoot. When he called out to the fleeing men, they gave no response. Before long, a second group of soldiers came toward Clark's position, and after some hesitation, he allowed his men to fire. A brisk gun



PFC Robert Straede, a company armorer in the 63rd Infantry inspects a newly repaired BAR at Fort Ord, CA in August 1951 before it can be reissued to troops in the field. The BARs of the Korean War era were fairly uniform but all sorts of models and configurations were seen during World War II. Sometimes a "modernized" M1918A2 would go off to Ordnance for repairs and come back with a brand-new-style wooden forearm making it look like a World War II-production BAR except for its retrofitted magazine guides. (NARA)

battle erupted, but luckily, Clark soon picked out the characteristic sound of a BAR coming from the "enemy" position. He ordered his men to cease fire. They discovered that the first group were actually CCF soldiers, while the group that they had exchanged shots with were survivors of a badly mauled American company.

In another part of the fighting a different company had been reduced to 23 able-bodied men. Four of their BARs were taken out of action by CCF fire. Nearby, another company had taken 60 casualties, with eight killed in action. The fighting had grown so intense that they lost all nine of their BARs. One had been destroyed by a Chinese bullet, and the other eight had been fired to the failure point, where they overheated and malfunctioned. Although the BAR could not maintain the continuous rate of fire of a light machine gun, the men of that particular company still praised their BARs and considered it their primary rifle-squad weapon. All rifle-squad activity now centered on the BAR.



IMPACT

The heart of squad firepower

MORALE

A glance through the Medal of Honor citations offers a microcosm into the incredible reliance American combat forces placed on their BARs from World War I through the Korean War. The names of all the Medal of Honor winners who were BAR men, or who picked up a BAR from a fallen comrade, or those who were assisted by a BAR man are far too numerous to list here. Throughout the citations many of the descriptions clearly state that the BAR gunner was firing “from the hip,” which was one of the original tactical assault methods recommended by military planners of World War I. The Medal of Honor citations for World War I, as is the case for many subsequent citations, merely refer to the weapon as an “automatic rifle.” It is possible that the weapon in some of these cases could have been a Chauchat; however, the vast majority of the medals were awarded for actions that took place during the latter weeks of the war well after the BAR went into combat. The designated BAR man was usually a private or a corporal, but occasionally an officer would either directly or indirectly use an automatic rifle.

During World War II, LtCol Keith L. Ware of the 3rd Division tried to bolster the morale of his faltering battalion. His assault companies had been repulsed by machine-gun, artillery and mortar fire while attempting to take a hill near Sigolsheim, France. After making a two-hour reconnaissance LtCol Ware grabbed a BAR and went up the hill himself. Two officers, nine men and a tank followed him. LtCol Ware approached the first machine-gun position and killed the two German riflemen supporting it. He then fired tracer rounds from his BAR into the machine-gun emplacement in order to give the tank crew a fix on its location. The tank blew the gun and crew to pieces. The lieutenant colonel, with the help of his tank, repeated the procedure three more times and destroyed three more machine guns.

Although wounded, LtCol Ware survived the action and would later receive the Medal of Honor.

The BAR provided a tremendous psychological boost not just to the riflemen of the fire team or squad, but all the way up to the platoon and company levels as well. BrigGen S.L.A. Marshall wrote numerous books and served as an official US Army historian during World War II and the Korean War. While many of Marshall's theories have encountered criticism today, he did interview hundreds of GIs coming off the battlefield and he was a strong proponent of the BAR. One of Marshall's specialties was gathering together small units of combat troops and recording their experiences. He wanted to get the enlisted man's perspective to find out what went right and what went wrong and he tried to conduct his interviews as soon after the event as possible. In many cases, a man would survive one engagement and get killed days or weeks later in the next engagement. Marshall's works of this period are replete with first-hand accounts of BAR men and whatever one may think about his more-contested theories he was hardly alone in his support for the weapon. All across the US military the BAR received high praise and garnered plenty of support.

In *Commentary on Infantry Operations and Weapons Usage in Korea – Winter of 1950–51*, Marshall concluded that on many occasions the BAR helped bolster the fighting line and increased the confidence of the riflemen. In Korea, a skilled BAR man proved a greater deterrent to enemy snipers than a half-dozen riflemen. BAR men were so highly appreciated that the other members of the squad actually volunteered to lug extra ammunition for the weapon. One early criticism dating back to World War I concerning the BAR – or any automatic rifle for that matter – hinged on the fear that the gunner would ineffectually waste a lot of ammunition. Skilled BAR men in Korea certainly put that concern to rest. With an effective kill range of about 500yd (457m), BAR men were conservative in their ammunition expenditure and according to Marshall's findings exhibited the least amount of loose or panic fire in the company. The BAR ranked ahead of the .30cal machine gun in terms of aimed fire and fell not too far short of the M1 Garand. The select-fire M2 carbine ranked lowest in all categories among the four weapons compared.

While the presence of the BARs could strengthen the morale of an infantry unit, the sudden loss of them could produce the opposite effect. G Company, 38th Infantry set up its defenses on a hill near the Chongchon River as a CCF company pressed their center. The commanding lieutenant had placed his machine gun on the hill with a BAR on either side. When the Chinese troops reached within 40yd (37m) the lieutenant ordered the machine gunner to open fire. The machine gun jammed. The lieutenant then ordered one of the BAR men to fire. That

PFC Patrick E. Shea, a BAR man with the 3rd Infantry Division, managed to hold back a column of Germans with his BAR when they tried to overrun his platoon in Rochefort, Belgium. His isolated company held off German attacks for two days until British troops came to their assistance. He is holding a new-production M1918A2 distinguishable by its magazine guides, which are integral to the trigger-guard assembly. The "modernized" M1918A2s featured retrofitted magazine guides held in place by screws. (NARA)



weapon jammed too and a moment later the second BAR malfunctioned. Then the lieutenant raised his carbine, squeezed the trigger and nothing happened. With no automatic weapons remaining the situation seemed hopeless. The lieutenant ordered a quick and apparently quiet retreat to another hill where they managed to repair the machine gun and one of the BARs. They successfully defended themselves on the second hill.

Aside from Marshall's study, Capt Robert C. Gates, an Army infantry officer serving in Italy during World War II, remarked that a skilled BAR gunner taken out of action could not be easily replaced even if the weapon itself was still available. Gates considered the BAR one of the infantry company's most effective weapons in the right hands. One BAR man in his company reportedly shot 20 German soldiers in an hour during a counterattack – as many as the rest of the platoon combined. Gates recommended that every member of the squad should receive proficiency-level training on the BAR.

During the Korean War, all members of the small four-man Marine fire teams were trained to effectively use the BAR. On a personal level, the BAR often gave added reassurance to the man wielding it. The assistant BAR man may have been the lowest member of a Marine fire team, but the gunner certainly wasn't. PFC Pete Rendina landed in Korea in November 1952 and served as a BAR man during his year-long tour. He was proud of his assignment and he later reflected that the BAR had given him a psychological edge for coping with the realities of combat. He was the best-armed man in his team and when the situation looked precarious everyone turned to him for support. Rendina was the anchor of the fire team and he knew it.

Throughout the *Commentary on Infantry Operations*, Marshall urged the Army over and over again to double the number of BARs they were using in Korea and cut the number of M1s. Marshall didn't want to eliminate the semi-automatic M1 altogether because it provided accurate fire and it often determined the outcome of a battle after all of the company

Taking cover behind their tank escort, one man of this Ranger patrol of the 5th Regimental Combat Team, 24th Infantry Division, uses his BAR to return the heavy Chinese Communist small-arms and mortar fire which has them pinned down on the bank of the Han River. At left another soldier uses a field radio to report the situation to headquarters. (NARA)





weapons had expended their ammunition. He also recommended that the Army adopt the Marine model of the four-man fire team with each team equipped with a BAR. The Army had gone to a nine-man squad during the Korean War and Marshall felt that the squad would prove more effective if it operated as two fire teams plus the squad leader.

The US military did not follow Marshall's recommendations. Within a few years of the end of the Korean War the military phased out both the BAR and the M1 Garand for regular infantry service. Experiments were conducted with the select-fire M14, although due to its inadequacies as an automatic rifle it would be restricted to semi-automatic in general service. In some ways the 20-round M14 was intended to be a compromise between the two. Military planners as far back as World War I had predicted that eventually all the riflemen in a rifle company would carry automatic weapons. The M14 fired the 7.62mm NATO round, which was a .30cal cartridge of roughly comparable performance to the .30-06. By the time the United States had stepped up its operations in Vietnam in the mid-1960s, the lightweight M16 had started to replace the M14.

Although the BAR had been officially dropped from US infantry service, a few of the aging squad workhorses saw action during the Vietnam War on both sides of the conflict. A wide variety of American weapons including BARs showed up in the hands of the North Vietnamese Army and Viet Cong. The French military had been equipped with a tremendous quantity of American arms and when the French abandoned their hold on Indochina the communist forces seized a cache of firearms and ammunition.

At Harze, Belgium in 1944, a BAR man engages a sniper at long range. Note the BAR man's size compared to the other soldiers. In contrast to the usual Hollywood depictions of BAR men, in reality a big man would have been the least likely in the squad to carry the weapon – for the smallest man in the squad presented the smallest profile, and BAR men were prime targets along with officers. According to Cpl John T. Pepper, a BAR man in Korea, when his company selected a new BAR man the most important quality they looked for was aggressiveness. The second most important quality was size, and somewhere down the line came intelligence and marksmanship. (Armor Plate Press)

During the Vietnam War, ARVN troops, Montagnard hill tribesmen, and the US Special Forces were still using the “obsolete” BAR. On the other side of the conflict the NVA and Viet Cong also put John Browning’s automatic rifle to deadly use whenever they could capture them. (Armor Plate Press)



Some of the US Special Forces units in Vietnam carried BARs and were glad to have them. One Special Forces sergeant noted, “Many times since my three tours of duty in Vietnam I have thanked God for ... having a BAR that actually worked, as opposed to the jamming M16 ... We had a lot of Viet Cong infiltrators in all our [Special Forces] camps, who would steal weapons every chance they got. Needless to say, the most popular weapon to steal was the venerable old BAR.” Working closely with the Special Forces, the Montagnards – tough mountain men from the Vietnamese highlands, recruited to fight for the US government – were equipped with surplus World War II and Korean War-era arms. Some of the Montagnards were seen literally cutting down trees with their BARs in an attempt to kill communist soldiers in hiding. Similarly, the Army of the Republic of Vietnam (ARVN) soldiers fighting with the US forces were also armed with surplus American weapons, including BARs.

PROBLEMS

The BAR was generally considered a reliable weapon. Various problems were encountered, though, that adversely impacted morale. During World War II Ordnance men working out of shop trucks near the front stayed busy repairing and cleaning the weapon and replacing worn-out parts. With the weapon’s rapid rate of fire, the gas-cylinder body on the BAR located at the end of the gas-cylinder tube would often suffer from heavy carbon build-up and stick fast or actually rust in place. In some cases a dirty weapon could only fire in a single-shot capacity. If water or other substances entered the rate-of-fire-reducer mechanism in the butt stock, the weapon could only fire at automatic-fast, leaving the slow rate of fire unavailable. Sgt James C. Raymond, an Army BAR man in Korea, noted that he lacked even solvent or wire brushes to keep his weapon clean, but he was issued disposable

plastic gas pistons. When the carbon built up on the piston he just threw it away and installed a fresh one.

During the Korean War studies showed that the level of maintenance and general care for infantry weapons at the front, including BARs, varied greatly from one company to the next. Sub-zero and even sub-freezing conditions can play havoc with equipment. Mortars suffered from broken firing pins as well as cracked base plates from constant contact with the hardened ground. Even grenades proved problematic at sub-zero temperatures. The pins were more difficult to remove and the user sometimes suffered from frostbite from exposure to the very cold metal. The BAR seemed to hold up about as well as any other weapon in cold weather although many did suffer from frost-lock. With maintenance at the front anything but uniform, the BAR men of one company might apply a heavy coat of oil, while others cleaned their weapons with gasoline, and some applied a thin layer of oil. Often, BAR gunners would fire their weapon at regular intervals to prevent it from freezing. Once frost-lock occurred, many BAR men used the classic GI solution to the problem by urinating on the weapon. PFC Rendina stated that he had no problems with his BAR during the cold weather months in Korea although the M2 carbines carried by his fellow Marines would readily freeze up.

Interestingly, a special device was installed on at least some of the BARs used in Korea during cold-weather operations. It was impossible for the BAR man to work the trigger while wearing a mitten or even a thick glove, so the military adopted an auxiliary winter trigger. The housing for the winter trigger covered the integral trigger-guard assembly while the new trigger itself extended behind it for easy reach. The retrofitted winter mechanism also featured a side-mounted magazine release that the gloved gunner could readily operate.

The worst failure rate for the BAR occurred in November 1950 in Korea among the soldiers of the 2nd Battalion, 38th Infantry. Brand-new production BARs usually showed few or no mechanical problems; however, quite a number of BARs used in Korea were reconditioned models left over from World War II. It was speculated that worn-out recoil springs caused the malfunctions. Later investigation revealed that many BARs had been reconditioned in Japan by Ordnance and that the potentially weak recoil springs had not been replaced but simply cleaned. It was never determined if 2nd Battalion's BARs were improperly reconditioned models or not, since the relevant Ordnance records were apparently lost and furthermore, most of the BARs themselves were discarded during the battle. In the fighting retreat along the Chongchon River an inoperable BAR was nothing more than 20lb (9.1kg) of useless weight.

The BAR man here is not employing the recommended technique for cleaning the barrel. With the butt pointed toward the ground he runs the risk of allowing bore cleaner to seep into the sensitive parts of the rate-reducing mechanism, a retrofit in the case of this "modernized" M1918A2, located in the butt stock. When the actuator spring, a part of the rate reducer, ceased to function properly, the weapon could no longer fire at automatic-slow – it could only fire at automatic-fast. Although a skilled gunner could squeeze off a single round with the "slow" rate of fire he would have been hard-pressed to accomplish the same feat with the "fast" rate. (Armor Plate Press)



Sgt George E. Young (center) at the UN Reception Center in Pusan, Korea is giving a refresher course in BAR operation and maintenance to a pair of Dutch replacements who will soon go into action. (NARA)



COMPARISONS

The BAR was certainly one the most powerful and reliable weapons of its type. John Browning initially developed his BAR as an improvement on the French Chauchat automatic rifle. The French considered the automatic rifle, of foreign or domestic manufacture, the primary weapon of the combat group. Following World War I, the French developed an improved automatic rifle, the “Fusil mitrailleur Modèle 1924” (FM 24, later FM 24/29), firing a 7.5mm rifle cartridge. Perhaps out of national pride, the French considered the FM 24/29 far superior to the BAR or any other automatic of its class.

Throughout the course of World War II, however, they begged the United States to send them more and more BARs. The French had equipped the American Expeditionary Forces with ample supplies during World War I, and in a historic reversal the United States launched a massive program to rearm the French during World War II. During the course of the war the United States not only armed and outfitted eight full French divisions in North Africa but trained them as well. The United States also partially equipped three more divisions in France. In 1943 the French requested 1,769 BARs for three of their divisions, but the United States had shortages of its own and could only supply 253. The Americans provided an extra allotment of Thompson submachine guns to make up for the deficiency and were eventually able to send 1,000 BARs. The French also requested that the US government manufacture 115 million rounds of 7.5mm ammunition for their 1,600 or so FM 24/29s still in service. The United States turned down the request as impractical.

With the exception of the French, most people considered the BAR a better weapon than the FM 24/29. Over the years the BAR was also often measured against the Thompson submachine gun, which is not really a fair comparison for either weapon. The Chauchat and FM 24/29 at least fell into the same category as the BAR, while the short-barreled Thompson, firing heavy, low-velocity .45cal pistol ammunition, is classified as a submachine gun and not an automatic rifle.



A French soldier who was lucky enough to receive a BAR, fighting in the streets of Marseille, France in 1944. Due to the shortages of BARs many French troops were issued Thompson submachine guns, which proved a poor substitute for an automatic rifle. The weapon seen here appears to have an early-style bipod. (NARA)

US Marines operating in Haiti in the 1930s conducted a series of experiments to determine which weapon – the Thompson or the BAR – would prove a better choice for jungle warfare. The original M1918 is a fairly long weapon at 43.5in (1,105mm), so a Marine Corps Ordnance officer cut 9in (229mm) off the barrel and 4in (102mm) off the gas-cylinder tube and the recoil spring inside. At 34.5in (876mm) it was nearly as compact as the 31.8in (808mm) Thompson. While the BAR's effective range was cut in half it was still considerably more accurate than the Thompson, which although surprisingly accurate for a submachine gun was not optimized for such ranges. The Thompson also lacked the .30-06's ability to penetrate trees, although its 230-grain bullets were very effective at clearing lighter foliage. The BAR in modified form also proved more effective in firing from the prone position than the Thompson was. The cut-down BAR did however produce an enormous muzzle blast and was extremely loud. Despite these tests the US military retained both weapons for infantry



An early wz.28 in action during the 1944 Warsaw Uprising. Like the commercial Colt Model 1925, the wz.28 featured a pistol grip, finned barrel, ejection port cover, and a magazine well cover. The later wz.28s featured a base mount fixed to the barrel that would accommodate an anti-aircraft ring sight. An estimated 210,000 Polish people were killed during the Uprising. (Armor Plate Press)

service, and the soldiers and Marines fighting in the jungles of the Pacific usually had no trouble employing their full-length BARs.

Similarly, Clyde Barrow also modified at least two of his ill-gotten BARs by sawing the barrels down to the same length as the gas-cylinder tube and on one of them he even cut down part of the butt stock. While the Marines in Haiti were cutting down their BAR barrels for jungle fighting, Clyde Barrow cut down his BARs to better facilitate fighting from a car. Barrow certainly did not want to give up his BARs and he apparently never used a Thompson, but a shorter weapon proved easier to handle inside the confines of a moving sedan. The Barrow Gang practically lived in their cars, which they changed frequently to avoid detection. Clyde Barrow didn't need a long-range weapon, but just needed to lay down enough heavy firepower to make a quick escape. Even with a shortened barrel the BAR could still disable a police armored car of the period.

While fighting at Guadalcanal and elsewhere in the Pacific the US Marines were highly fond of their BARs. Many Marines didn't like to use the Thompson – not because there was anything wrong with the submachine gun itself, but because it sounded too much like the Japanese .25cal automatic. Often, when the Marines fired their Thompsons other Americans nearby would start shooting at them, thinking that they were Japanese.

One group of Americans fighting in the Pacific did prefer the Thompson to the BAR. Soldiers of the 32nd Division sent to New Guinea felt that the BAR was too clumsy, too heavy, and too difficult to keep in working order in the jungle. While they neglected their BARs, they burned through tremendous amounts of .45cal ammunition with their Thompsons. They also used large quantities of .30-06 rounds with their .30cal machine guns

Two of John Browning's automatic weapons in action on Okinawa. The BAR man here is with the 1st Marines. (Armor Plate Press)



and their M1 Garands, apparently on many occasions shooting at phantom targets. When they ran low on machine-gun ammunition they gathered their unused 20-round BAR magazines, emptied them, and then inserted the unused cartridges into the cloth machine-gun belts. Japanese soldiers were surprised at how recklessly the Americans would use up their ammunition and even their grenades. One Japanese soldier jokingly remarked that perhaps the Americans were getting paid by the number of rounds they fired. It should be noted, however, that this was the 32nd's first time in combat and that they had not been properly trained for this type of fighting.

The BAR's role was not limited to cutting apart sniper-infested trees or frond-covered spider holes, and it could have a devastating impact on enemy personnel in more creative ways. While fighting along the Chongchon River in Korea, F Company, 38th Infantry set up a machine gun to serve as the primary defensive position against an imminent CCF attack. In keeping with standard tactics, a BAR man, in this case PFC Cleo Wachel, was positioned nearby to protect the machine-gun crew and to provide cover along the draw to their front. Wachel concealed himself in a foxhole reinforced with sandbags. A house stood just in front of the Americans and Wachel could shoot down the right side of the house while the machine gun had a clear line of sight down the left.

Three riflemen were positioned behind Wachel and they were ordered to fire in support of the BAR. Chinese skirmishers were coming off the ridge to infiltrate their position but by this time it was dark and Wachel had to be careful not to shoot the GIs from the 3rd Platoon who were also on the ridge. When the Chinese came within 25yd (23m), Wachel called out to make sure they weren't Americans. They responded with submachine-gun fire. Wachel fired back but the CCF soldiers still came forward, crouching behind rocks until they finally rushed the house. In the meantime, more Chinese troops had set up a machine gun 100yd (91m) directly in front of Wachel, which began to hammer away at the Americans. Wachel and his riflemen tried to take out the CCF machine gun but could not get a good fix on it in the darkness. Suddenly, the Chinese soldiers behind the house began tossing grenades into the 1st Platoon's left flank. As Wachel couldn't hit the soldiers directly he decided to do the next best thing – he set the house on fire. Whether he used incendiary rounds or the more common tracer rounds is unknown, but when Wachel fired his BAR into the thatched roof it went up like a giant box of matches. The roaring blaze illuminated the entire area and the Chinese soldiers – who now lost the cover of darkness and could not withstand the intense heat – quickly withdrew.



A BAR man with the 165th Infantry on Makin Atoll, November 1943. In the thickly wooded jungles of the Pacific the BAR's penetrative power was highly valued. (Armor Plate Press)

Two soldiers are demonstrating antiaircraft techniques at Fort Benning, GA in 1942. The BAR man on the right is using a “hybrid” M1918A2 BAR. It has a World War I flash hider and no bipod, but a new M1918A2 rear sight. Oddly enough the man is also equipped with a bayonet. BAR men in the field sometimes carried fighting knives or possibly a short bayonet for use as a knife but rarely a 16in bayonet. The BAR could not accommodate a bayonet of any length. (NARA)



THE BAR IN THE POPULAR MEDIA

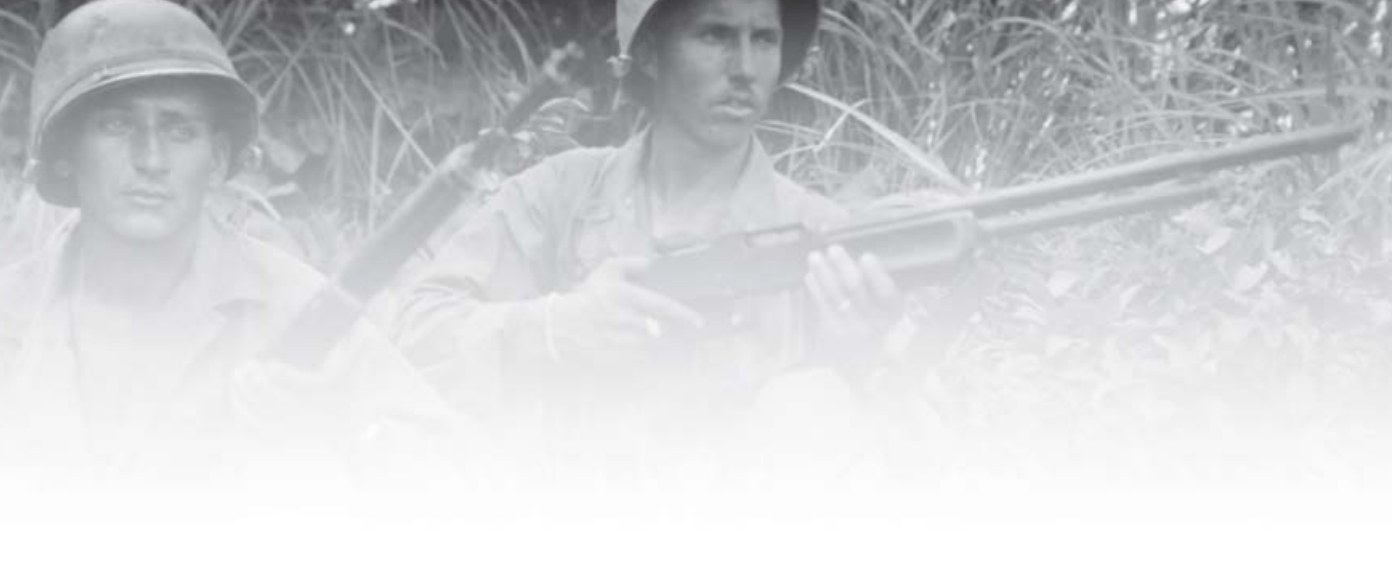
Although the BAR is certainly familiar to history buffs and many veterans of World War II, the Korean War, and slightly beyond it is not nearly as well known or as recognizable as it probably should be. The BAR's rival automatic, the Thompson submachine gun, is probably far better known in part thanks to the significant number of gangster pictures that have appeared over the years. While the military BAR and its commercial law-enforcement variant certainly saw action during America's gang-related violence of the “Dirty Thirties,” its practical neglect by the film industry for this genre is understandable since historically the more commercially available Thompson was in greater use. The same, however, cannot be said for the war pictures, especially the World War II films. The Thompson, the M1 Garand and the carbine in its various models readily appear on the screen, but for some reason the BAR often gets short billing if any at all. Considering the tremendous role it played at both the squad and fire-team levels, and its issuance by the tens of thousands to US troops in combat theaters, the BAR should have received significantly more screen

time. Any film depicting US Marines at Iwo Jima, for example, should show one out of every four men in a fire team carrying a BAR, and two out of the four should carry BAR ammunition. The BAR crew comprised half of the fire team.

When it does make an appearance on screen, the BAR emerges as something of an exotic weapon, as if it belonged to the heavy weapons platoon and not the far more common infantry rifle squad. In all too many films the BAR is simply missing in action. Over the years Hollywood has probably produced more films about World War II than about any other armed conflict in human history, with the possible exception of the “Indian wars” of the American West in numerous generic renditions. A significant number of war films were made while World War II was still in full swing. Filmmakers of that era may have been limited in their ability to secure realistic numbers of war equipment then very much in military service. The United States had already given the UK 25,000 BARs and as the war progressed the US government never could produce enough BARs to supply their French allies with anything close to adequate levels.

One of the most prominent BAR omissions from a non-wartime Hollywood film is in Warren Beatty’s *Bonnie and Clyde* (1967). While certainly an enjoyable and entertaining movie in its own right, it is quite a stretch from the real events and of all the historical liberties to take, the lack of BARs is a significant one. It is well established that Clyde Barrow never used a Thompson submachine gun; it was his use of BARs that gave the Barrow Gang the edge over the police. If the gang had been armed with Thompsons at Platte City they may never have got past the police armored car or the officers protected by steel shields. Similarly, the real lawmen took no chances at the end and leveled the playing field with BARs of their own, although to be fair to the filmmakers, the memoir of Ted Hinton, the last surviving member of the six-man posse at the final ambush, was only published posthumously in 1979.

Several films do offer great views of the BAR in action. Warren Oates’ *Dillinger* (1973), which highlights the exploits of 1930s gangster John Dillinger, makes extensive use of a number of BARs. However accurate the film might be in general, it does show period-specific World War I-era M1918s with the exception of one weapon, which for some reason has a hinged butt plate. Interestingly, the heroes of *Kelly’s Heroes* (1970) are not equipped with American military BARs but are carrying a pair of what appear to be Belgian FN Modèle 30s. The automatic rifles used by Clint Eastwood’s men feature pistol grips, finned barrels, ejection-port covers, reverse-mounted rear sights, and bipods mounted on the gas-cylinder tube. One gunner carries his magazines not in a BAR ammunition belt but in a machine-gun ammunition box. *Saving Private Ryan* (1998) shows new-production M1918A2s in the correct timeframe. The BARs used in the production were actually built during the Korean War by the Royal Typewriter Company, but matched their World War II counterparts in all respects. The BAR man’s weapon seen throughout the film is appropriately enough missing its bipod. The hinged butt plate and flash hider are still attached.



CONCLUSION

Following the Korean War US military planners decided to provide all the riflemen in the rifle squad with automatic rifles and drop the base-of-fire weapon altogether. The early experiments with the select-fire M14 proved unsatisfactory; the regular infantryman's M14 was restricted to semi-automatic only, and attempts to develop an automatic-rifle version, the M14A1, also failed to meet expectations. Some considered the M14 nothing more than an M1 Garand with a detachable magazine. In the 1960s, with the conflict in Vietnam escalating, the United States switched to the select-fire M16 and committed itself to a significantly smaller standard rifle cartridge – the 5.56mm round, which is still used to this day.

Although the American infantrymen were equipped with lightweight automatics the role once filled by the powerful BAR was left empty. Finally, in the mid-1980s the military adopted the M249 Squad Automatic Weapon (SAW), a version of the FN Minimi. The SAW is an air-cooled, gas-operated, belt-fed automatic weapon with a select rate of fire at 750rpm at normal, or 1,000rpm at maximum. Ammunition for the SAW is fed from a 200-round box containing a disintegrating metallic link belt. The SAW can also accept M16 rifle magazines.

Although it took more than two decades to fill the void, the SAW was specifically intended to replace the BAR as the new squad or fire-team base-of-fire weapon. The SAW is classified as a light machine gun although it is also regarded as an automatic rifle. It can be fired from the shoulder or the hip like the BAR and it can also be fired from the underarm position. The SAW can also be mounted on a tripod and function as a machine gun or the gunner can use a bipod while firing from the prone position. In many ways the SAW is an improvement on the BAR since the SAW is fitted with a quick-change barrel and with the 200-round box magazine can deliver considerably more fire before needing to reload. The weight of a

SAW loaded with the 200-round box is roughly equivalent to that of a loaded M1918A2.

The one great disadvantage of the SAW compared to the BAR is the fact that it employs the small 5.56mm standard rifle cartridge. It lacks the range and penetrating power of the old .30-06 round. The SAW is generally considered a harassing fire weapon whereas the BAR equipped with armor-piercing and armor-piercing incendiary rounds could penetrate light armor and lightly fortified emplacements.

American troops fighting in the mountainous regions of Afghanistan are finding it difficult to engage enemy combatants at longer distances. Enemy forces typically fire the larger Russian 7.62×39mm cartridge, giving them an advantage over the Americans who can't get the same range with their 5.56mm rounds. In GI parlance, American troops are finding it difficult to "reach out and touch someone." At the time of writing the US government is looking at options to satisfactorily upgrade or replace its current infantry weapons systems, but in any case it appears that the small-caliber squad automatic is here to stay.

A Marine automatic rifleman mans his M249 SAW during a joint services exercise. In terms of deployment the 5.56mm SAW is the direct descendant of the BAR, with the Marines issuing one per four-man fire team, alongside three 5.56mm rifles or carbines. (GySgt Hernandez/USMC)



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- <<http://www.koreanwar-educator.org>> (a fantastic source for the first-hand accounts of US veterans, including some BAR men and their assistants, who served in the Korean War)

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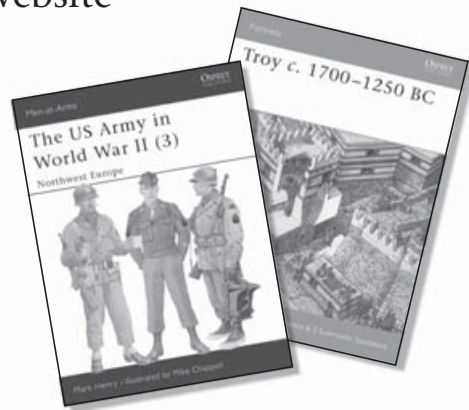
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